€ EUROZONE, FINANCE AND ECONOMY

POLITEIA

New Direction
the foundation for european reform

REVERSING DECLINE

VOCATIONAL TRAINING AND EDUCATION FOR A HIGHLY SKILLED WORKFORCE

SHEILA LAWLOR

www.europeanreform.org @europeanreform

New Direction

Established by Margaret Thatcher,
New Direction is Europe's leading free market political foundation & publisher with offices in Brussels, London, Rome & Warsaw.

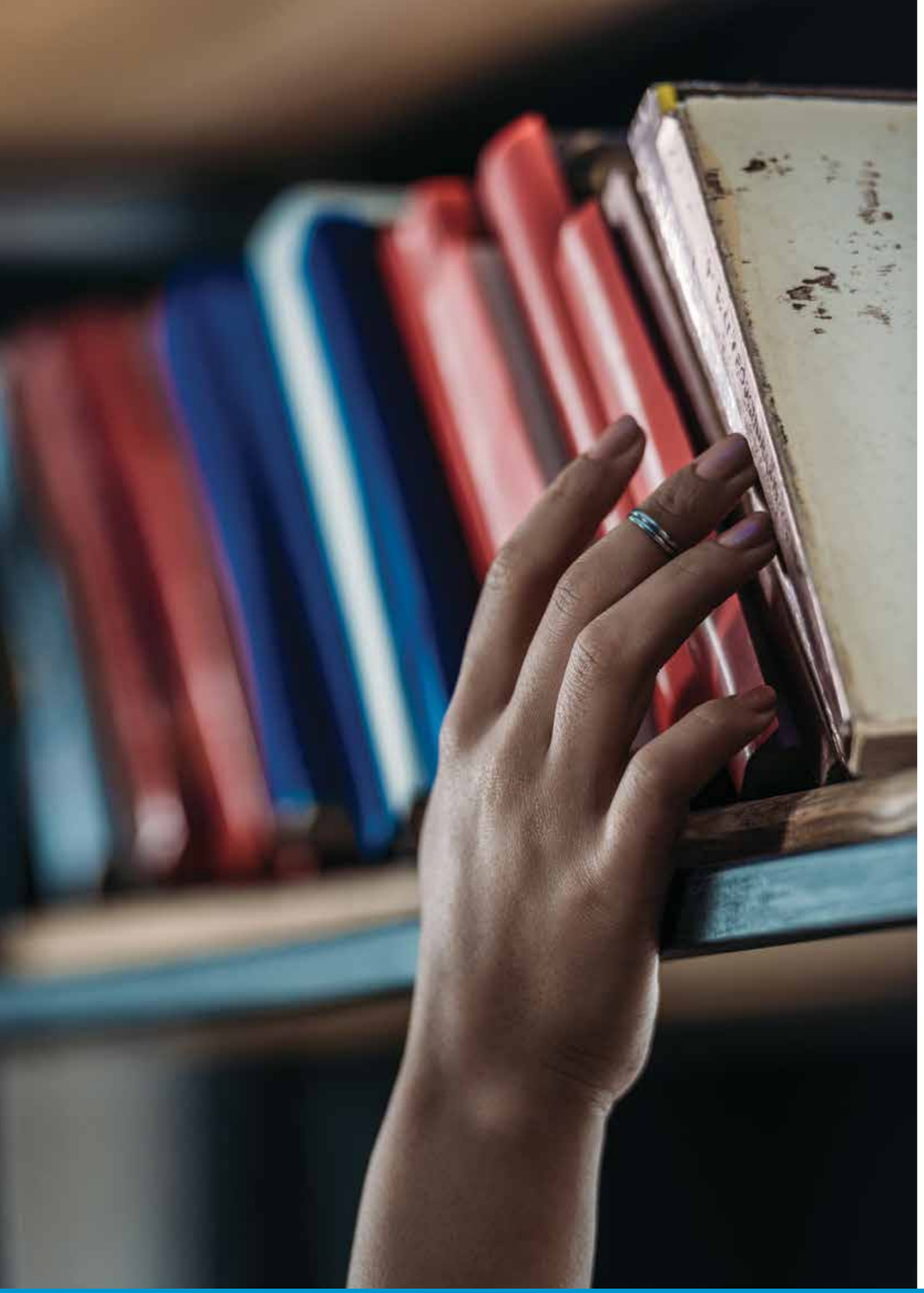
www.europeanreform.org **@europeanreform**

New Direction is registered in Belgium as a not-for-profit organisation and is partly funded by the European Parliament.
REGISTERED OFFICE: Rue du Trône, 4, 1000 Brussels, Belgium. EXECUTIVE DIRECTOR: Naweed Khan.

Sheila Lawlor

Sheila Lawlor is Director of Politeia where she directs the social and economic policy programme. She is the editor of and a contributing author to Politeia's *Curriculum series, Comparing Standards* (3 volumes, including *'Comparing Standards: Academic and Vocational, 16-19 Year Olds* and to the joint publication with New Direction, *The State, National Identity and Schools.*

Her background is as an academic historian of 20th century British political and constitutional history. She is the author of *Churchill and the Politics of War, 1940-41* and is is currently completing a book on the politics of post war social policy and the evolution of education, health and benefits policy.



Sheila Lawlor

1

INTRODUCTION

For western Europe's three largest developed economies, Germany, France and the UK, much of their success in the future will depend on how effectively they develop and sustain a highly skilled, knowledge-based economy poised to compete globally. Not only will economic and employment policy matter. So too will each country's education and vocational training system, how successfully each educates pupils to realize their potential to the highest international standards, and how well each provides for a vocational training system to equip entrants to a high value labour market for the years to come.

In these three countries, the world's fourth, fifth and sixth richest economies respectively, the picture of how each approaches education and training differs. Germany is perceived as having a highly developed vocational education system which promotes its success as a leading producer of engineering and electronic products, cars and machinery and it certainly puts a high price on vocational education. France's global ranking and high productivity owe much to the successful cultivation of the country's intellectual elite and economic sectors ranging from aeronautical and engineering goods to agricultural products. The UK system has, by comparison, neglected vocational education and training while also failing generally to nurture the academically most able. The focus of economic policy has been on the fiscal, monetary, regulatory framework and the UK's successful sectors appear to have emerged without a linked formal education and vocational training policy.

In Germany, schools at secondary level are in general selective from age 12. An integrated vocational system - its dual system of training and education - is closely linked to the country's industrial base and seen as part of the country's success story. From ages 15/16 pupils can continue education and combine it with specialist vocational training in dedicated schools and colleges. This training can also take place part-time in industries and firms, which are themselves closely involved in the training model and include some of the main exporting industries representing a range of sectors from motor vehicles and machinery to chemicals and computer, electronic products, electrical equipment and pharmaceuticals[1]. (see pp 10-25 Germany)

1 Bauer (construction and machinery); Bosch; Constellium (Aluminium); Deloitte; Ericsson; Ernst & Young; Fiege Stiftung (Logistics) Freudenberg Group; Fujitsu; GKN (Engineering); Hager Group (Electrics); IHK Kemnitz; Infiana (Engineering); Kennametal (Industry) KraussMaffei Group; The Linde Group (Chemical company); Daimler / Mercedes Benz; Lufthansa; Nagel Group (Transportation and logistics); Rittal

In France, the system is selective after 16 after which around 28 per cent per cent of pupils follow a vocational route in a lycée professionnel towards a professional qualification, others the technological route (20 per cent) or the academic route (52 per cent) to a baccalauréat and university entrance, and the most able prepare for entry to the selective grandes écoles. Although at school age the French vocational system is seen as less developed than that of Germany, like Germany after 16 the vocational path combines education with practical training and apprenticeships, and for some sectors, is pitched at a high level. The state has historically promoted higher technical education with the aim of national cohesion and economic and industrial development, and the grandes écoles developed from the late 18th century aimed to train the country's elite corps of administrators, scientists, engineers, political scientists, agricultural specialists: these contribute today to the high worth, high skill sectors along with the aeronautical and financial services industry, though the textiles and mining of France's 'industrial revolution' mainly in the north east declined in France as elsewhere by the 20th century.

In the UK although the education systems in England, Wales and Scotland differ, each is mainly non-selective, though Northern Ireland has retained selection. In England's system, which will be discussed in this analysis, pupils generally move at c.11 from primary to secondary, mostly comprehensive, schools or to a small number, of grammar schools (163). There is no separate vocational system for pre 16s and when secondary age education was extended after the 1944 Act, the opportunity was missed to develop distinct vocational schools in the decades before comprehensive schooling and the uniform approach began. In practice vocational courses and qualifications are offered in secondary schools, and for 16-19 year olds there are a number of further education (FE) and sixth form colleges and an increasing number of apprenticeship schemes with firms and businesses for part time training. The vocational qualifications system is now being reformed and a new post 16 technical system will be introduced to run parallel with the academic.

The absence of good secondary age vocational education may have contributed to the consequences of decline after the industrial revolution in the later 19th and 20th centuries when the once powerful industries in the north and midlands dwindled over a century and a half before ending production. They lost out to cheaper imports, changing production methods, product markets, consumer preferences, to leaner more competitive labour markets and production in developing global economies. Some industries adapted or moved on to meet today's demands (see below pp 43-44), but by and large and by comparison with France and Germany, two higher productivity economies, the UK labour force and economy has been weakened by the proportion of low skilled workers in low skilled jobs (greater than in any other country in the OECD, except Spain)[2]. That large 'tail' of underachievement, educationally and vocationally remains in contrast to the UK's leading position in a number of high value sectors with a highly skilled, often highly educated labour force and an entrepreneurial dynamic, in areas such as financial and legal services, digitial, tech and scientific research industries and universities.

Each of these three western developed economies, characterized by high levels of social provision with relatively high levels of public spending to GDP, faces rising costs to meet high social expectations for healthcare and retirement, and other costs associated with demographic ageing. For each, the task will be to continue to move the economy to more competitive and productive levels, with a highly skilled labour force producing high worth goods which people the world over want to buy. For the UK, however, with a higher 'tail' of underachievers in terms of education, skills and labour market performance, the task will be greater so that the significant proportion of lower earners whose income is topped up by various tax credits and benefits, can benefit from a training and education system that raises overall levels of skills and training. This goal will become increasingly urgent, as low skill jobs in catering, retail, or other routine activities or services are replaced by automation. To the problems left by the death of heavy industry will be added the redundancies prompted by the changes, every bit as dramatic, of our own age.

Each country will have its own aims and goals as it develops its education and training models in line with national education policy and with an eye to future competiveness and the country's ability to pay its way as a successful and modern democracy, economically prosperous and free, while ensuring the high levels of social provision desired by voters.

This analysis considers the system to be found in each country with a view to proposing how the UK can best adapt its education and training system in the coming years. Are there lessons to be learned from France and Germany, this country's most similar continental neighbours?

Each of the individual systems will be considered in terms of their overall structure and arrangement, curriculum, general academic aims, vocational education goals and basis. The analysis will conclude by suggesting there may be lessons from France and Germany for the UK as it restructures the system both of general education and vocational and technological education and training. Now that Britain is leaving the EU and preparing for its new global role as a trading economy, with its own seat on the WTO, it needs, as it develops its financial and industrial base, to equip its labour market.

2 Getting Skills Right: United Kingdom, OECD Publishing, Paris, 2017. Figure 1.6, Polarised demand for high and low skills in the UK. Percentage of workers in jobs jobs requiring primary education or less and percentage of workers in jobs requiring tertiary education. http://www.keepeek.com/Digital-Asset-Management/oecd/employment/getting-skills-right-united-kingdom_9789264280489-en#page21 (The OECD measure is on basis of proportion of jobs in the UK needing only primary level education. The picture suggests high UK levels of graduates are offset by the high level of low skill labour from outside the UK).

2

GERMANY

INTRODUCTION

The German 'dual system' is often seen as particularly effective in providing a generally high level of education, one which allows for some vocational teaching and training throughout secondary years. The labour market story is one of success against a range or measures, from productivity to youth employment though the picture is not without its weaker areas, including parts of former east Germany, with some areas scarred by high youth unemployment and drop out rates (see p.13 below).

How far different factors contribute to the overall success of the education and training system is unclear: Germany has a later starting age than the UK for primary school, Grundschule at 6; the period of compulsory age schooling has until now been longer than in France and the UK (though that will change in the UK), with pupils obliged to continue some schooling or training to 18; it has a selective secondary schools system from as early as age 11, when traditionally pupils move to one of three types of school the *Gymnasium,* the *Hauptschule*, the *Realschule*, each of which offers a single course of education leading to a leaving certificate, whereas the comprehensive or *Gesamtchulen* is a more recent addition[3]. While many states now combine two or three courses under one roof, the political acceptance of a selective system remains a distinctive feature of German education by comparison with that of the UK. The experiment with comprehensive schooling introduced in some cities and Länder in the late 1960s and the early 1970s beginning in West Berlin and a few other Länder was controversial, and after some extension in the 1970s it remains controversial and unproven.

In law schools are under the jurisdiction of the state governments, with the exception of the Berufsschulen, which are under the control of federal government, industry and trade unions and paid for by government and industry. The apprenticeships are run by the local businesses and chambers of trade and handicraft.

General education in the pre-16 period is followed by a highly organized and popular post-16 (upper secondary) vocational education with more than half the upper secondary age range in vocational education with or without an industry apprenticeship or in a part time Berufsschule for work based training or apprenticeships with part-time education/school[4].

Around 700,000 (694,198) entered vocational training in 2015, of whom 480,674 or c. 69 per cent entered vocational training in the dual system under *BBiG/HwO* (The Vocational Training Act (*Berufsbildungsgesetz,* BBiG – R79) and the Handicrafts Code (*Handwerksordnung,* HwO – R80). Most of the remainder entered some form of school based vocational training (9,350 who took vocational training under public law, ie civil service training for the intermediate level). 500,000 (528,157) entered stage II secondary education, to work to a higher education entrance qualification[5].

3 The Hauptschule is up to age 15 or 16, the Realschule to 16, and the Gymnasium to 18 or 19.

4 Around 60 per cent of pupils in the post 15/16 (Sekundarbereich II) were studying at a variant of Fachschulen or Berufschulen 2015 figures, Statistiche Veröffentlichungen Der Kultusministerkonferenz, Dokumentation Nr. 211 – Dezember 2016, Schüler, Klassen, Lehrer und Absolventen der Schulen 2006 bis 2015.

5 Report on Vocational Education and Training 2016, Bundesministerium für Bildung und Forschung / Federal Ministry of Education and Research (https://www.bmbf.de/pub/Berufsbildungsbericht_2016_eng.pdf)

New entries in the Vocational Training sector[6]

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Vocational training sector of which:	739,168	751,562	788,956	776,047	728,484	729,577	741,023	726,560	716,042	700,516	694,198
Vocational training in the dual system under BBiG/HwO	517,342	531,471	569,460	559,324	512,518	509,900	523,577	505,523	491,380	481,136	480,674
School-based vocational training at vocational schools under BBiG/HwO	11,472	11,903	9,813	8,780	6,709	6,118	5,874	5,506	4,792	4,735	12,698
School-based vocational training at vocational schools outside the provisions of BBiG/ HwO according to Länder law	32,514	31,341	29,683	25,693	23,352	20,677	19,223	17,564	15,437	14,746	13,681
School-based vocational training providing a higher education entance qualification (double qualification)	29,177	31,495	32,189	34,209	25,623	25,718	24,379	24,234	24,292	24,145	13,140
School-based vocational training in the healthcare, education and social welfare professions under national and Länder law	142,710	140,484	143,144	142,407	153,840	159,850	160,141	164,776	171,081	166,407	164,656
Vocational training in training provided under public law (civil service training for the intermediate level)	5,953	4,868	4,667	5,634	6,442	7,314	7,829	8,957	9,061	9,347	9,350

Source: Bundesministerium für Bildung und Forschung / Federal Ministry of Education and Research: Report on Vocational Education and Training 2016.

6 Report on Vocational Education and Training 2016, (Table 9) Bundesministerium für Bildung und Forschung / Federal Ministry of Education and Research (https://www.bmbf.de/pub/Berufsbildungsbericht_2016_eng.pdf) The number of new entries into the transition system rose in 2015, with 270,783 young people beginning a transition measure, 18,113 (+7.2 %) more than in the year before. This increase was due mainly to the increasing number of refugees and migrants in the system. For the Eurostat figures for vocational upper secondary, see share of students in vocational education programes, 2015 (%) ET17.png (http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_students_in_vocational_education_programmes,_2015_(%25)_ET17.png)

Germany does have a problem of young people who are not in employment, education or training. In some states the figure for 18-24 year olds is between c. 10-14 per cent, including Berlin, Brandenburg, Bremen, Hamburg, Niedersachsen, Nordrhein-Westfalen, Saarland, Sachsen-Anhalt, Thuringen and Mecklenburg-Vorpommern. This is in contrast with an average unemployment rate of under 4 per cent nationally (Oct. 2017 figures) and some data suggesting youth unemployment of around 7 per cent.

Nonetheless, the system overall is seen as highly successful in educating and training young people to take their place in Germany's competive goods and services - themselves a global leader. Under the next three headings the different routes will be considered and the institutional arrangements for each highlighted to illustrate the analysis.

Land	NEET rate (2016, 18-24years)	Youth unemployment rate (2016, 15-24years)
Baden-Wurttemberg	7.80%	6%
Bayern	6.40%	4.40%
Saarland	12.60%	10.10%
Rheinland-Pfalz	9.40%	7.30%
Nordrhein-Westfalen	10%	7.40%
Niedersachsen	10.10%	7.00%
Bremen	12%	N/A
Hamburg	12%	7.50%
Schleswig-Holstein	9.30%	7.50%
Thuringen	10.50%	10.10%
Sachsen	8.80%	8.20%
Brandenburg	11.60%	10.10%
Berlin	12.70%	12.20%
Mecklenburg-Vorpommern	14.10%	N/A
Hessen	9.40%	8.40%
Sachsen-Anhalt	11%	10.60%

Source: European Labour Market Survey, Eurostat, 2016
Germany NEET level (20-24 years): 9.7% [Eurostat] OECD figure is 10.79% for 2016 (https://data.oecd.org/youthinac/youth-not-in-employment-education-or-training-neet.htm) Note Different age ranges are used in the data. Eurostat regional breakdowns are for 15-24 or 18-24 years, but for country-wide statistics the age range of 20-24 is used. The national average for Germany for 18-24 years can be calculated as 10.5%.
Germany youth unemployment level (15-24 years): 7% [OECD, Youth Unemployment Data] https://data.oecd.org/unemp/youth-unemployment-rate.htm
In October 2017 unemployment in Germany was 3.6 per cent.The EU 28 unemployment rate was 8.8 per cent. (Eurostat Eurostat – Euroindicators October 2017, published 30 November 2017 http://ec.europa.eu/eurostat/documents/2995521/8491608/3-30112017-BP-EN.pdf/5206b358-348f-416b-877e-70a75d58f1ef
Eurostat – Euroindicators October 2017, published 30 November 2017 http://ec.europa.eu/eurostat/documents/2995521/8491608/3-30112017-BP-EN.pdf/5206b358-348f-416b-877e-70a75d58f1ef

PRIMARY SCHOOL - GRUNDSCHULEN

Compulsory school age begins at 6 when children attend Grundschulen for grades 1-4 (six grades in Berlin and Brandenburg). The goal is to move pupils from play-oriented to systematic forms of school learning with the aim of acquiring and extending basic (and adaptable) competences, including reading, writing and mathematics, on which nationwide standards are set. Curriculum subjects include maths, German, general studies, art music and sport, local studies, religion/ethics handicrafts, and increasingly, a foreign language. Towards the end of primary a decision is taken by parents and teachers and pupils as to the type of secondary school pupils will attend[7].

LOWER SECONDARY PHASE – AGES 10-15/16 (GRADES 5-9/10)

The main secondary schools include Hauptschulen attended by around 12 per cent of pupils, Realschulen, attended by around 23 per cent, Gymnasien, attended by around 35 per cent, some comprehensive schools, for around 15 per cent while schools with multiple programmes accommodate around 12 per cent. Under law, the lower secondary curriculum must teach a number of core subjects, German, mathematics, the first foreign language, natural and social sciences. Music, art and sport must also be included. A second foreign language is mandatory at the *Gymnasium* in grades 7 to

7 The Education System in the Federal Republic of Germany 2014/2015, Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, Bonn, 2017 (https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/dossier_en_ebook.pdf)

SHARE OF PUPILS IN GENERAL EDUCATION SCHOOLS LOWER SECONDARY SCHOOL AGES 10/11 - 15/16[9]

2014/15 (SEKUNDARSTUFE I)

School Type	Percentage (2014/15)
Gymnasien	34.20%
Realschulen	22.70%
Integrierte Gesamtschulen	15.80%
Hauptschulen	12.10%
Schools with multiple education programmes	11.40%
Schulartunabhängige/Orientierungsstufe (Independent)	2.40%
Freie Waldorfschulen	1%
Sekundarbereich I	**Total: 4,153,777**

GERMAN LOWER SECONDARY CORE SUBJECTS

German
Maths
Foreign Language 1
Natural Sciences – physics, chemistry and biology
Social Sciences – history, geography and others
Music
Art
Sports
Religious Education (Länder determined)
Arbeitslehre – pre vocational
Foreign Language 2 (Gymnasiums, possible in Realschule)

Source: Statistische Veröffentlichungen Der Kultusministerkonferenz, Dokumentation Nr. 211 – Dezember 2016, Schüler, Klassen, Lehrer und Absolventen der Schulen 2006 bis 2015 (https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Dok211_SKL2015.pdf)

10 and may be offered in other types of school. An introduction to the professional and working world is a compulsory component of every course of education and is provided either in a special subject such as *Arbeitslehre* (pre-vocational studies, work-economics-technology) or as part of the material covered in other subjects or subject groups. Religious education is subject to the regulations in each Land in line with the religious or denominational character of the Land[8].

HAUPTSCHULEN (10-15/16)

Around 12 per cent of pupils move at 10/11 to the Hauptschulen. Although numbers have declined, the aim remains to provide a basic general education to prepare pupils for moving to a practical occupation through specialization at 15/16. Although they do not take an exam, they are awarded the middle school leaving certificate, the Mittlere Reife provided they complete the Haptschule. In some major cities such as Berlin and

8 The agreement reached in December 1993, as amended in September 2014, by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder (Kultusministerkonferenz – KMK) concerning the types of schools and courses of education in lower secondary level (Vereinbarung über die Schularten und Bild- ungsgänge im Sekundarbereich)

9 Malecki, Andrea, 'Schulen auf einen Blick', Statistisches Bundesamt, August 2016 (https://www.destatis.de/DE/Publikationen/Thematisch/BildungForschungKultur/Schulen/BroschuereSchulenBlick0110018169004.pdf?__blob=publicationFile)

Hamburg, Hauptschulen were abolished having often been seen as problem schools. Bremen, also considered to have some problem Hauptschulen, has kept them. In Bavaria they are a significant part of the system, well supported and not seen as 'problem'schools.

The curriculum and qualifications
German, a foreign language (usually English), mathematics, physics/chemistry, biology, geography, history are taught with social studies, music, art, sport, religious education. A pre vocational course, *Arbeitslehre* (work-economics-technology) is included and in some Länder, domestic science, economics and other work-related subjects. The emphasis in recent reforms has been on pupil acquiring basic competences in German and mathematics and preparing them for professional practice and promotion of social competence. Some subjects such as maths or foreign languages will be organized by 'set' with pupils grouped by ability. In states with nine years of schooling, a tenth year will be offered for those who want to take the *Hauptschulabschluss* or for able pupils to take the more advanced *Mittlerer Schulabschluss*, in a 10th year or subsequently.

REALSCHULEN

The *Realschulen* developed from the 18th century to offer some practical education along side the general curriculum. They are popular schools, with good academic standards (though academically less demanding than the Gymnasium)

The curriculum and qualifications
German, mathematics, physics, chemistry, biology, geography, history, politics, music, art, sport and religious education are taught. A second foreign language may be added from grade 7 or 8 (ages 14/15-:). Pupils have the option of of joining a pre-vocational track for commercial and practical subjects.

The school leaving certificate at 15/16 (*Mittlerer Schulabschluss, Mittlere Reife, Fachoberschulreife, Realschulabschluss*) is normally needed for the next phase of upper secondary education 16 -18/19 in one of a number of vocational schools (see below) along with some work experience in the sector and qualifies a pupil to transfer to a school that provides vocational or higher education entrance qualification. (see below)

GESAMTSCHULEN - COMPREHENSIVE SCHOOLS

The *Gesamtschule* or comprehensive school was introduced in its recent form from the late 1960s and 1970s as an alternative to the existing system. From the start it was politically and educationally controversial and remains so, and is now just one type of school in the wider system, combining elements from the *Hauptschule*, the *Realschule* and the *Gymnasium*. Pupils spend around six years there before getting a *Hauptschule* or a *Realschule* leaving certificate. Those wishing to sit the *Abitur* attend the school for another three years.

The leaving certificate/diploma can be the Mittlerer Schulabschluss (Realschulabschluss)/ Hauptschulabschluss/ Übergangsberechtigung).

Qualifications

On completion of education in lower secondary level, the pupils receive a leaving certificate, provided that they have successfully completed grade 9 or 10. In most of the Länder pupils are required to sit central examinations at Land level in order to obtain the leaving certificate.

Hauptschulabschluss - after grade 9. This is a first general education qualification and is called the Hauptschulabschluss in most Länder. A leaving certtificate is issued after grade 9 if adequate marks (mark 4 or ausreichend) or better are received in every subject. In some Länder, the certificate is attained by success - fully completing grade 9 and passing a final examination. At lower secondary level schools that go beyond grade 9, a corresponding qualification can be obtained in most Länder if certain marks are achieved. This first leaving certificate in general education is usually used for admission to vocational education and training in the so-called duales System (dual system). In addition, it qualifies a pupil, under specific conditions, for admission to certain Berufsfachschulen (a certain type of full-time vocational school). Moreover, it is a prerequisite for subsequent admission to certain Fachschulen (schools for continued vocational training) and institutions offering secondary education for adults known as Zweiter Bildungsweg. In some Länder, it is possible to obtain a qualifying Hauptschulabschluss testifying to an above- average performance. At the end of grade 10, in some Länder, an extended Hauptschulabschluss may be acquired which, under certain conditions, allows admission to further Berufsfachschulen.

Mittlerer Schulabschluss, Realschulabschluss - after grade 10. At the end of grade 10, it is possible in any Land to obtain a Mittlerer Schulabschluss, which is called Realschulabschluss in most Länder. In the majority of Länder, this certificate is issued after successful completion of grade 10 and after passing a final examination. The Mittlerer Schulabschluss can be obtained after grade 10 at other types of lower secondary schools as well if certain standards of achievement are met, and also at the Berufsschule with the requisite achievement level and average mark. It qualifies a pupil for admission to courses of upper secondary education, e.g. at special Berufsfachschulen and at the Fachoberschule, and is also used for entering a course of vocational education and training within the duales System (dual system).

https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/dossier_en_ebook.pdf

Starting on the basis of a Mittlerer Schulabschluss satisfying the requirements for admittance to the gymnasiale Oberstufe or an equivalent qualification, the Berufliches Gymnasium leads, as a rule, to the Allgemeine Hochschulreife (a general entrance qualification for higher education).

UPPER SECONDARY PHASE - VOCATIONAL SCHOOLS, THE DUALES SYSTEM

Vocational Schools 16-19 *Berufsfachschule, Fachoberschule, Berufliches Gymnasium, Berufsoberschule, Berufsakademie and Fachschule* A range of upper secondary vocational schools provide full and part time education and training post 16, and these are formally part of the education system. They include the Berufsfachschule, Fachoberschule, Berufliches Gymnasium, Berufsoberschule and two others technically classed as tertiary, the Berufsakademie and Fachschule. Further details for each are below.* Courses provide training for middle range middle level posts in technical fields, business, administration and the civil service, they can lead to a vocational qualification for skilled work, and many can also lead to a higher education entrance qualification. Mainstream occupational areas covered include business, design/manufacturing, social care and technology, and areas such as the health sector, nutrition and home economics, bio- and environmental engineering.

Two others, the *Berufsakademie and Fachschule*, though technically in the tertiary sector, offer post 16 vocational education on a full- or part-time basis (both are classified as in the tertiary sector in the International Standard Classification of Education ISCED). Fachschulen courses are mostly full-time for 2 years, can be 1-3 years (longer if part-time) and tend to five main occupational areas, agricultural, business, design/manufacturing, social care and technology under which a number of specialisations (c.170) are offered, the most popular being business and social care (taken by two thirds) and technology taken by most of the remainder (c. one third).

The curriculum and qualifications
The curriculum at the upper secondary phase includes teaching in core subjects such as German, maths, English as well as the applied subjects for the specialism, with different emphases in different schools and courses. The Fachoberschule, for instance includes subject teaching in German, foreign language, mathematics, natural sciences, economics and society as well as field-specific subject and practical training, whereas the Berufsoberschule (set up to help those with a vocational education background in the dual system move to a higher education entrance qualification), offer specialisations in technology, economy and management, nutrition and domestic science, health and social professions, design as well as agricultural economy, bio- and environmental engineering.-

Depending on which instiution is attended and which courses are offered, qualifications can be for a specific profession or for a certain strand of higher education. They can include a vocational qualification, a specific occupational certificate ('state certified'), the Fachhochschulreife (the higher education entrance), Allgemeine Hochschulreife (another higher education entrance qualification) or Fachgebundene Hochschulreife. **The list includes such full time vocational schools post 16 as:**

- **Fachoberschule** offers courses in business and administration, technology, health and social work, design, nutrition and home economics, as well as agriculture, bio- and environmental engineering, potentially towards the Fachhochschulreife certificate.

- **Berufsfachschule** prepares for one or several occupations, e.g in business, using foreign languages, technical occupations, health sector, crafts industry, social work related, a vocational qualification in a specific occupation and sometimes the Fachhochschulreife. *Berufsfachschulen* provide part of vocational education and training in one or several occupations requiring formal training or lead to a vocational education and training qualification in a specific occupation.

- **Berufliches Gymnasium** offers a three- year course of education to the Allgemeine Hochschulreife (the general entrance qualification for higher education) with career-oriented specialisations.

- **Berufsoberschulen** are full or part time, for those from the duales system with the Mittlerer Schulabschlus or equivalent qualification, have vocational education and 5 years practical experience. They offer course in technology, economy and management, nutrition and domestic science, health and social professions, design as well as agricultural economy, bio- and environmental engineering with pupils

assigned a specialisation in line with initial vocational training or practical experience. They prepare for the *Fachgebundene Hochschulreife or Allgemeine Hochschulreife* (with a second foreign language)

Outside the higher education system, technically the tertiary sector are the - Berufsakademien, Fachschulen:

- **Berufsakademien** (professional academies), are part of the tertiary sector combining some academic training at a *Studienakademie* (study institution) with practical professional training with the companies paying for the on-the-job training and a wage, including during the theoretical training at the study institution.

- **Fachschulen** (continuing vocational education/ upgrading training) *Fachschulen* exist in the following fields: agricultural economy; design; technology; business; social work. Whether on a full or part-time basis, they lead to a continuing professional education qualification in accordance with Land legislation. Each state's curriculum is under federal education rules and allows for a 20 per cent local element.

(*Under the 'framework agreement' of the Standing Conference of Ministers of Education and Cultural Affairs of the Länder (Kultusministerkonferenz) Länder governments in consultation with local authorities. The state committees decide on the number of training programmes and places. An outline from Schleswig Hostein's Fachschulen prospectus is given below).[10]

*For the official account of the system broken into different phases, see, *The Education System in the Federal Republic of Germany 2014/2015*, Thomas Eckhardt (Ed.) in cooperation with the German, EURYDICE Unit of the Federal Government in the Federal Ministry of Education and Research, Bonn, Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, Bonn 2017). **https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/dossier_en_ebook.pdf** For the upper secondary vocational phase and the Berufsacademie and Fachsule, see pp 136-41,147-

THE DUALES SYSTEM 15/16-: WORK BASED TRAINING, APPRENTICESHIPS AND BERUFSCHULEN

Although admission to the dual system does not need a formal qualification, most entrants have either a Haputschulabschlus (around 29.5 per cent) or a *Mittlerer Schulabschluss* 42.3 per cent (2013 figures). With more than half the age range beginning vocational education and training at 16, the sector is highly developed with around 330 training occupations recognised in law in the dual system for 2- 3.5 years. (The Vocational Training Act (*Berufsbildungsgesetz,* BBiG – R79) and the Handicrafts Code (*Handwerksordnung,* HwO – R80). Training takes place both in the work place and in a *Berufsschule* (vocational school). The aim is to prepare for a skilled occupation with the necessary professional experience and to be qualified to work in an occupation requiring formal training (*anerkannter Ausbildungsberuf*).

In the dual system, both the *Berufsschule* (vocational school) and the workplace form the two places of learning, with the Berufschule giving a minimum of twelve hours teaching a week. As well as the vocation related teaching and some interdisciplinary lessons, there is a special focus on extending in a practical way the subject knowledge already acquired in German language, a foreign language, politics or economics, religion (ethics) and sports, with such practically-oriented covering around eight hours a week. Training is based on a training contract between a training company and the trainee and trainees spend three or four days a week at the company and up to two days at the *Berufsschule*, often with additional training block arrangements of up to six weeks.

10 'The Education System in the Federal Republic of Germany 2014/2015', (https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/secondary.pdf)

Fachschulen - Summary outline from prospectus from Schleswig Holstein*

The prospectus outlines the options or fields offered under four headings:

- **Gestaltung- Design**
- **Sozialwesen- Social work activities**
- **Technik – Technology**
- **Wirtschaft –Economy**

The departments are divided into disciplines. In the case of 'Design' there are two options Handwerklich Gestalten (Handcrafted figures in e.g. Ceramics, Metal, Wood, Textiles) and Raumgestaltung und Innenausbau, (interior design). For the first 'handcrafted figures', mathematics, German / communication, English are taught along with such subjects as design, shape, materials technology. For the second, interior design, subjects are construction (with proportionately higher focus) materials technology, maths.

*Landesverordnung über die Fachschule (Fachschulverordnung - FSVO), Vom 20. Juli 2017. http://www.gesetze-rechtsprechung.sh.juris.de/jportal/;jsessionid=29527E9D97DC8F8EA6EDB3F3F5C5409B.jp13?quelle=jlink&query=FSchulV+SH&psml=bsshoprod.psml&max=true&aiz=true#focuspoint

UPPER SECONDARY EDUCATION – GENERAL

Sekundarbereich II, Allgemeinbildende Schulen	2015
Total	1,022,949
Gymnasien	859,527
Integrierte Gesamtschulen	116,570
Freie Waldorfschulen	15,798
Abendgymnasien	15,388
Kollegs	15,666

UPPER SECONDARY EDUCATION – VOCATIONAL (PART TIME AND FULL TIME SCHOOLS)

Sekundarbereich II, Berufliche Schulen - Teilzeitform	2015
Total	1,566,070
Berufsschulen	1,428,440
of which *Teilzeit-Berufsschulen*	1,423,405
of which *Berufsvorbereitungsjahr*	5035
Berufsfachschulen	28,099
Berufsober-/Technische Oberschulen	1,701
Fachoberschulen	42,218
Fachschulen	64,880
Fachakademien/Berufsakademien	732

Sekundarbereich II, Berufliche Schulen - Vollzeitform	2015
Total	930,545
Berufsschulen	83,612
of which *Berufsvorbereitungsjahr*	60,557
of which *Berufsgrundbildungsjahr*	23,055
Berufsaufbauschulen	236
Berufsfachschulen	403,047
Berufsober-/Technische Oberschulen	17,474
Fachgymnasien	194,696
Fachoberschulen	97,232
Fachschulen	126,129
Fachakadamien/Berufsakadamien	8,119

Source: Statistische Veröffentlichungen Der Kultusministerkonferenz, Dokumentation Nr. 211 – Dezember 2016, Schüler, Klassen, Lehrer und Absolventen der Schulen 2006 bis 2015 (https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Dok211_SKL2015.pdf)

BERUFSSCHULEN AND WORK-BASED VET

Berufsschulen (15/16-: 2/3 years)
These are vocational schools combing part-time education with part-time training in an apprenticeship or on-the-job. Technically in the dual system, for which the school leaving qualification is not needed, these schools offer part time (12 hours minimum vocational and interdisciplinary lessons) combined with work placed training. They are run, not by the land/state authorities, but by federal government, industry and the trade unions. The aim is to prepare for a trade or entry-level work in the public sector or certain types of industrial employment. The focus is on such areas as industry, commerce, agriculture, home economics, and the curriculum is mixed with c. 60 per cent of class time on training and the remainder (40 per cent) on specialized subjects.

Curriculum and Qualifications
In addition to the vocational content the general education has a practical focus in the German language, a foreign language, politics or economics, religion (ethics) and sports. Decisions on teaching time are taken with the training companies, supervisory bodies and industry bodies. Although in the dual system no formal entry qualifications strictly speaking are necessary, most entrants have either a Mittlerer Schulabschluss (43 per cent) or a Hauptschulabschluss (29.5 per cent). Trainees are prepared for a vocational school-leaving certificate and professional certificate Facharbeiterbrief/ Kaufmannsgehilfenbrief/Gesellenbrief depending on the sector.
https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/secondary.pdf

The criteria for the formal arrangements, its procedure and goals and the pass criteria are laid down in the regulations set by the federal government and by industry through the German Chambers of Commerce and Industry. Examiners, who are drawn from industry with some appointed by the chambers of commerce and from amongst 16-19 vocational teachers, have professional qualifications and experience working or teaching in the field. The supervision of training contracts is the responsibility of the chambers. Training consultants from the chambers check the training suitability of enterprises and trainers, accept training contracts and check and register them. The chambers organise the examination procedure by setting the requirements and appointing examination commissions, which conduct the examinations. In addition, the chambers issue the examination and graduation certificates. Examination commissions consist of representatives of employers, employees and vocational schools.

(This section draws on the analysis inThe Staatisches Bundesamt, based on a report by the Hanseatic Parliament which refers to the work of an association of over 50 business chambers in the Baltic Sea region. See also Fazekas, M & Field S, *OECD Reviews of Vocational Education and Training: A Skills Beyond School Review of Germany,* OECD 2013, p. 70)

Post 16 - Advanced vocational examinations

Normally taken when upper secondary VET has been completed (after an apprenticeship and with some years of relevant work experience), are run by the the federal government or the chambers* (The Association of German Chambers of Commerce and Industry/Deutscher Industrie-und Handelskammertag, DIHK, is the central body for 79 Chambers of Commerce and Industrie, CCI in Germany, and all German companies under law must join a chamber though not handicraft professions, free professions or farms.)

THE GENERAL (ACADEMIC) ROUTE

The Gymnasium

The Gymnasium is for the more academically inclined pupils ages 10-18/19 and had its origins in the 16th century when the emphasis was initially on Latin and Greek. Today, pupils have a broad curriculum, continuing with certain subjects such as German, a foreign language, mathematics and physical education and usually history and one of the natural sciences.

The curriculum and qualifications

The rule is that certain subjects must be taken throughout schooling from three broad areas, (i) languages, literature and the arts, (ii) social sciences and (iii) mathematics, natural sciences and technology. The subjects in each area include for example:

- languages, literature and the arts - German, foreign languages, fine art, music
- social sciences - history, geography, philosophy, social studies/politics, economics
- mathematics, natural sciences and technology- mathematics, physics, chemistry, biology, information technology

In addition, religious education, in line with the provisions of the Land and also sports are compulsory. These subject areas must be studied up to the Abitur, the school leaving exam, but in the upper phase of the Gymnasium, post 16 (the gymnasiale Oberstufe) pupils will take two or three subjects as main intensive courses *(Leistungskurse)*. Of these one must be German or a foreign language or maths or a natural science and the others are taken as basic courses, Grundkurse.

The subjects at the *gymnasiale Oberstufe* are taught at different academic levels and standards.

The four or five subjects of the *Abitur* examination must include at least two subjects at a higher academic standard, two of the following three subjects, German, foreign language or mathematics, and at least one subject from every main area of compulsory subjects. Religious education may or may not be included as a social science depending on the Land. In some Länder lessons in the core subjects are only taught at a higher level or academic standard.

For the Abitur there are three written exams, two of which are in the Leistungskurse, the third in one of the basic courses subjects (Grundkurse) and an oral exam also in a Grundkurse. (The mark is based on the assessment of the *Leistungskurse* and two other subjects.) In some states a fifth can be added. (On the basis of the Abiturprufung and an assessment of the two final years of upper secondary school, the *Zeugnis der Allgemeinen Hochschulreife certificate* is awarded.)

The Abitur is needed to study at a university, technical college or a higher vocational institute, depending on which subjects are taken. Another variation of the *Abitur* is the *Fachabitur* the term often used for the 'restricted subject Abitur' (the *Fachhochschulreife or fachgebundenes Abitur*). This can be used for *Fachhochschule* entrance, a university of applied sciences comparable to a polytechnic and for university entrance for a limited range of subjects depending on what has been covered by the exam. With a 'restricted subject Abitur' for study at a university of applied sciences it must be indicated and taken into account in the certificate of the Zeugnis der Allgemeinen Hochschulreife.

* Organisation of General Upper Secondary Education Upper Gymnasium https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl-pdfs/dossier_en_ebook.pdf

CONCLUSION – AMBITIOUS AIMS, METICULOUS EXECUTION

The German system aims to ensure that whatever the ability or aptitude of the pupil, each will become an educated member of society and be equipped for an occupation in business and industry, and to play a full part in society in later life.

The focus is twofold. Pupils will be educated in the foundation subjects, their own language German mathematics, science, history and geography, a foreign language (or two) with teaching in these subjects continuing, by and large, right through the school years in both the vocational and academic pathways. They will also be offered courses which may predispose them to the occupations they will follow in later life. From 11 pupils at secondary school take a practical course, Arbeitslehre (work-economics-technology) in the Hauptschule; they have the opportunity to join a pre-vocational track for commercial and practical subjects in the Realschule, and are obliged to take maths, natural sciences and technology in the Gymnasium.

Germany's selective secondary education and the tripartite division at 11 may be problematic for those in Britain who are ideologically opposed to selection. But not only is the system well established - the comprehensive experiment having failed to gain widespread national support - but the decision about 'which secondary school?' is taken with parents and pupils, and opportunities are built into the system for pupils to change pathway throughout the school years.

The German system of vocational education and training from 16, in full- or part-time vocational schools often with an apprenticeship in the dual system, is admired the world over. That the model succeeds owes much both to the existence of a range of individual vocational schools, which have long provided the focus for different sorts of general and applied vocational teaching, and to the involvement and investment of business and industry in the apprenticeships, training programmes and qualifications of the dual system, including household names like Bosch and Mercedes. But the success also owes much to the education in general subjects which continues, with the implied view that whatever the occupation, employees today must be educated, capable of holding their own more generally, of being promoted to higher positions of responsibility, and that they will continue to improve their fundamental qualifications.

At the same time, Germany, unlike Britain, is not reticent about promoting the academically minded pupils through the Gymnasium, with concentrated teaching in a broad range of subjects, languages, the humanities, the sciences, technology and maths.

Teaching qualifications

Teaching qualifications vary depending on what and who is being taught but the general rule is that qualification in the specialist subject with the relevant university degree or vocational qualification is needed along with professional experience training and in the sector.

There are two types of teachers:

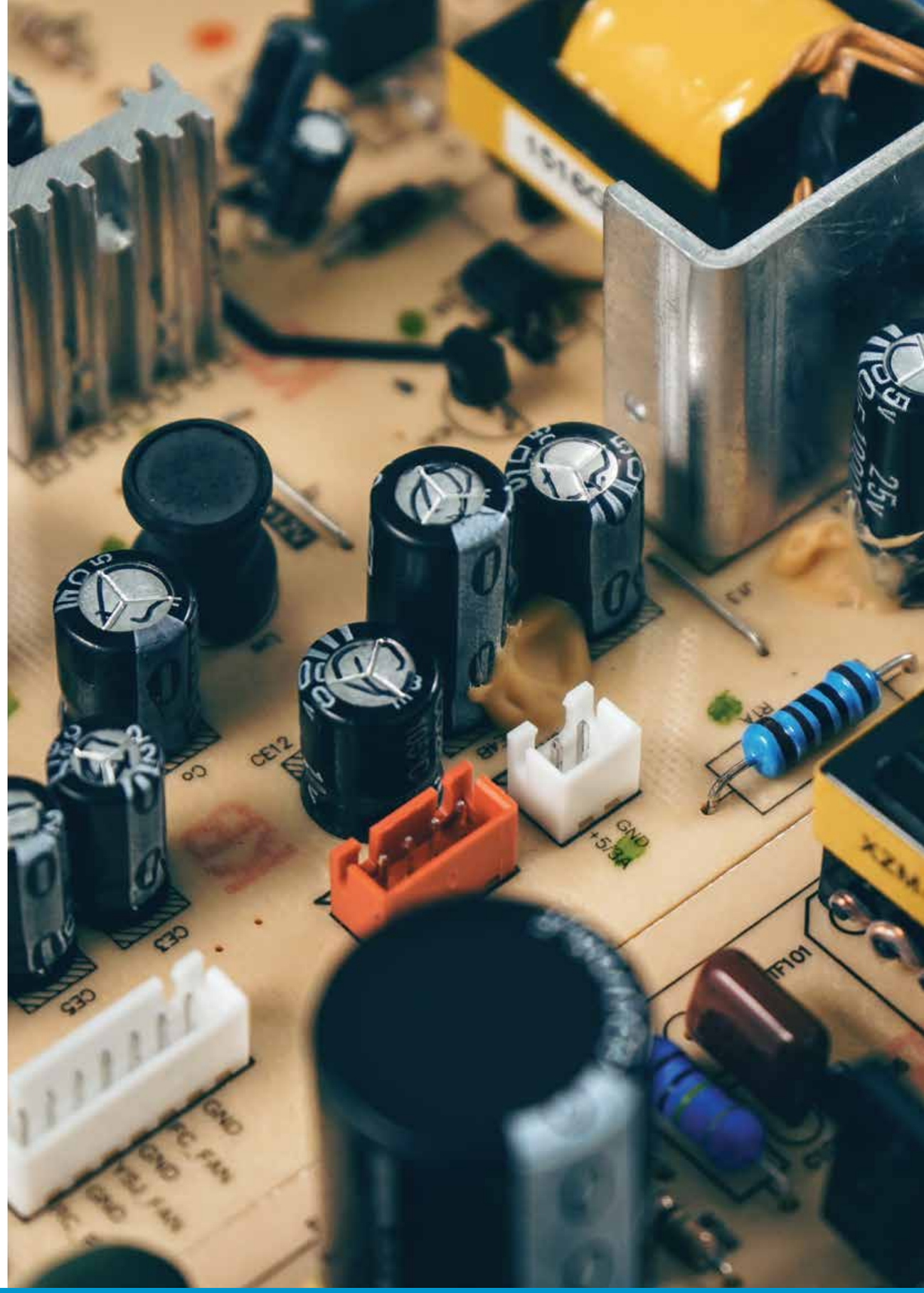
- the more theoretical type (Wissenschaftliche Lehrer) who must have completed university at master's level in two school-relevant subjects, have undertaken pedagogical training, and the second state examination. In general they obtain civil servant status after a three-year probationary period.
- the teachers of vocational practice or technical teachers (Lehrer für Fachpraxis, Technische Lehrer) are required to have postsecondary VET qualifications and professional experience. They are paid according to the Public Sector Collective Agreement on Länder (TV-L), and can become civil servants after one-year of pedagogical training and meeting some other requirements (Baden-Württemberg Kultusportal, 2012).

In the case of Fachschulen, teachers are often co-located with upper-secondary vocational schools and most Fachschule teachers also teach at upper-secondary level.

Unlike this country there is a sense of obligation to educate each pupil to full potential, including the most able. There may also be the recognition that no country, least of all the great engineering and technological giants of the future, can flourish economically if it fails to bring on the most able academically.

The whole system is premised on employing teachers educated to the highest standards. To this end German teachers are of two sorts. There are those who have completed university to master's level in two subjects of the school curriculum as well as pedagogical training. And there are teachers in vocational or technical subjects who must have both post secondary vocational qualifications and professional experience.

It would be difficult to single out one factor as the most important. The system, like a jigsaw, is the sum of its parts. Each piece is crafted and honed to fit with perfection while the overall picture is ambitious.



3

FRANCE

INTRODUCTION - STRENGTHS AND WEAKNESSES

While the French school system is less focused than the German in providing highly developed and integrated vocational education and training, there have been two notable characteristics which marked out the French arrangements. These aim to promote the political and economic ambitions of the French state, its industrial development and economic prosperity and ensure that it has a core of academically able pupils, who are the recipients of highly specialized education and training, often occupationally focussed.

First, the state traditionally has been interventionist in backing certain types of industry (and sometimes the associated labour force), to promote political and hegemonic aims: national cohesion, industrial development and economic success. From the 17th century onwards, in the reforms of successive finance ministers and notably those of Jean- Baptiste Colbert, Louis XIV's finance and industry minister, there has been a focus on national infrastructure such as canals and later railways, the glue for a politically unified hexagon; on the economic course for success; on the 'tools' to realise the projects - engineering, monetary reform, banking and the (later) establishment of the Banc de France in 1800. For each piece of this political and economic jigsaw, state support or protection, financial or legislative intervention were often deployed in the French dirigiste approach. Other parts of the story, planned, or unplanned, from agriculture to luxury goods, lent their lustre, including the early emergence of Paris as a world capital for retail characterized by department stores and luxury goods.

Second, and linked to the first, the state has promoted the country's best brains to provide the manpower on which success depended: thus the French state encouraged the academically able from the earlier school years to move on to specialized higher education and training in one of the selective 'grands écoles' which developed in France from the 18th century to train the country's elite corps of administrators, scientists, engineers, political scientists, agricultural specialists. The underlying assumption has been that for successful training, high academic standards provided the necessary foundation. Today France has a relatively high proportion of science and engineering graudates in the labour market[11].

Both characteristics have had a significant impact on the picture of the French economy which changed in the decades after world war two from a mainly rural, to an industrial economy. Each has played some part in setting the scene for today's high worth, high skill sectors and for 'legacy' industries such as the electronics and aeronautical industries, services, transportation, including Citroen and Rénault, Alstrom locomotovies, Michelin tyres, and banking/financial services, such as BNP Paribas and Crédit Agricole. Today services account for over c. 70 per cent of GDP and manufacturing goods, including automotive, aerospace and railway sectors, agricultural goods (of which France is the largest European exporter of farm products), luxury goods, e.g. cosmetics and clothes.

The upshot is that France retains its place in the world's rich list helped by its high value industries, high value exports and high productivity levels and despite the regular obstacles put in the way by the damaging economic and fiscal policy of successive governments. Many of these companies are household names, AXA, the popular insurance giant, Oréal the up-market cosmetic brand available in the chain store chemist, Danone, the food producer with a whiff of healthy eating, the utilities giants, such as EDF, the electricity provider, or Vivendi, the water company, and Sanofi, the pharmaceutical company.

Thus France's economic and industrial model appears to have benefitted from the academic focus of French education as the springboard for higher academic and technical education: it may have contributed to many of France's high worth, high productivity, knowledge

11 In 2012, the percentage of tertiary education graduates in natural sciences and engineering for France was 27 per cent (5th in OECD and 4th in EU after Germany, Sweden and Finland). Source: Fig 2.3.1, Tertiary education graduates in natural sciences and engineering (NS&E), 2002 and 2012, OECD Science, Technology and Industry Scoreboard 2015 - OECD 2015 [http://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-industry-scoreboard-2015/tertiary-education-graduates-in-natural-sciences-and-engineering-2012_sti_scoreboard-2015-graph81-en]
The World Economic Forum's Human Capital Report in 2015 listed France 9th (104,746 graduates) in list of 125 countries with most graduates in Engineering, Manufacturing and Construction. France was the highest ranking EU member. Source: World Economic Forum, Human Capital Report (2015), http://reports.weforum.org/human-capital-report-2015/

based successes – in the engineering, digital and aeronautical fields, and the pharmaceuticals and banking industries. Its premise has continued to underpin the education system as a whole, that for individual and national success pupils must initially master a common academic curriculum.

French schooling before 16 is not selective and the emphasis is on academic subjects though with some vocationally oriented subjects such as technology and life sciences and others such as art and PE. Standards can vary with significant gaps between high and poor achievement in schools. In France as in other western countries academic weakness, is compounded by social change, family breakdown, unemployed households, or the problems associated with some immigrant communities. France, like the UK, has a significant proportion of children from other countries which may or may have had link with France or been part of its territory.

To take one example of the disparity of achievement, the most recent PISA report indicates that French 15 year olds performed in line with the average OECD score for maths, science and literacy, with a score of 495 points to the OECD average of 493 and around the same rank as the US and Sweden, and with no significant change to scores over a decade. The children of immigrants (13 per cent of the 15 year old age range) did less well in science, and the French rating for social mobility was judged to be lower than the OECD average with children of immigrants performing 10 points lower in mean PISA science score.

2015 France's Pisa Scores: Maths 495, Reading 499, Science 495. For the full Pisa scores see the appendix. http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2015-results-volume-i_9789264266490-en#page46 https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf http://www.france24.com/en/20161207-french-students-most-affected-socioeconomic-disadvantages-oecd-pisa-study This is despite France's position by comparison with the previous PISA results (year) comparison remaining stable. (see appendix)

After 16 the school system is selective with a variety of lycées which provide different types and levels of education and vocational training. Pupils choose one of three pathways for 16-19, the Lycée Général (academic), Lycée Technologique (technical) or Lycée Professionnel (vocational). Around 72 per cent take the academic and technological route to baccalauréat and university entrance 28 per cent the vocational route through the lycée professionnel towards a trade or clerical post or further vocational training[12].

The quality of vocational provision, the cover (by sector or geographic area) and the take up can be patchy and the proportion of young people who do not continue their education, vocational or otherwise, and who do not train or work ('NEETS') is 18.2 per cent (20-24 years – 2016 figures). The corresponding figures are 9.7 per cent for Germany and 14.8 per cent for the UK. There are higher French regional variations. The picture from different parts of France indicates that in some urban and former industrial areas, for example the areas of the defunct textiles and mining industries of France's 'industrial revolution', in the north and north east in regions such as Picardie, Champagne-Ardenne and Nord - Pas-de-Calais, the NEET rate 2016, over 20 per cent by comparison with the French national average, 16.1 per cent (for 18-24 year olds, the rate is 16.3 per cent, for 20-24 year olds it is 18.2 per cent.) In fact the highest NEET rates are found in Picardie (21.7 per cent), Champagne-Ardenne (21.7 per cent) and Nord-Pas-de-Calais (20.9 per cent). The sames trend in parts of the UK. (e.g. the Tees Valley and Durham regions (NEET rate 2016, 23.2 per cent) can be detected in areas where similar 'industrial revolution' industries have long declined[13]. Although France's damaging fiscal and employment policies may have contributed to such high unemployment, the problem is exacerbated for many people by an inadequate general education combined with a failure to equip them for joining successful sectors[14].

Total tous baccalauréats (2016)	Total: 633,500
Total baccalauréat général	327,100 (52%)
Total baccalauréat technologique	126,600 (20%)
Total baccalauréat professionnel	179,800 (28%)

Source: Les principaux diplômes délivrés en 2016, 'L'Éducation Nationale en Chifres 2017', Ministère de l'Éducation nationale.
http://cache.media.education.gouv.fr/file/2017/96/3/depp-enc-2017_801963.pdf

Percentage of 18-24 year olds Not in Education, Employment or Training (NEET) 2016	
France – Average (18-24)	16.3 %
Bretagne	11.90%
Pays de la Loire	13%
Poitou-Charentes	19.90%
Aquitaine	13.30%
Basse-Normandie	15.10%
Centre	15.70%
Midi-Pyrénées	15.20%
Haute-Normandie	17.60%
Ile de France	14.30%
Bourgogne	12%
Auvergne	13%
Languedoc-Roussillon	18.60%
Provence-Alpes-Cote D'Azur	16.50%
Rhone-Alpes	13.80%
Franche-Comté	19.20%
Lorraine	15.90%
Champagne-Ardenne	21.70%
Picardie	21.70%

Source: Eurostat Labour Market Survey, 2016 http://ec.europa.eu/eurostat/cache/RCI/#?vis=nuts2.labourmarket&lang=en
*As in the case of the German figures, the regional breakdown is only available for 16-24 years or 18-24 years, whereas the national average is calculates for 20-24 years (which is 18.2% - 2016 figures) . The average can be calculated for the 18-24 age range as 16.3%.

12 The definition for these stages can vary –and in some cases the ISCED levels are used:
ISCED levels, (see: http://www.perfar.eu/policy/education/france)
Pre-primary (ISCED 0). This level of education is provided in kindergartens for children ages 2/3-6.
Primary (ISCED 1). This level of education is provided in elementary schools for children ages 6-11.
Lower secondary (ISCED 2). This level of education is provided in four-year collèges for pupils ages 11-15.
Upper secondary (ISCED 3). This level of education is provided over a three-year period to pupils ages 15-18
Higher education (ISCED 5 and 6).

13 In 2016, the highest NEET rates were found in Liverpool (11.7 per cent), Haringey (11.8 per cent), Lincolnshire (10.4 per cent), Shropshire (10.3 per cent), Birmingham (10.2 per cent) [DfE, 16-17 years (2016)].

14 Relatively high NEET rates are often found in urban areas characterised by a traditional specialisation in heavy industry. In the regions of Picardie, Champagne-Ardenne and Nord - Pas-de-Calais the NEET rates were over 20 % in 2016 figures. For the 20th century decline in jobs in the North East see de Guademar J. & Prud'homme R., 'Spatial impacts of deindustrialization in France', eds. Rodwin, L. & Sazanami H. Industrial Change and Regional Economic Transformation: The Experience of Western Europe (Routledge, London, 1991.
'Young People Neither in Employment nor in Education nor in Training' of 2016 can be seen in: http://ec.europa.eu/eurostat/statistics-explained/index.php/

THE SCHOOL SYSTEM

With education divided into three stages, children move from nursery to the first phase of compulsory schooling, primary school at six, to secondary school at 11, initially to the collège stage (ages 11-14), then at 15/16 to the lycée - général, technical or professional. Over the whole period of schooling pupils progress through twelve forms, with five forms in primary and seven at secondary, four of which are at the collège stage and the final three at the lycée*. There has traditionally been the possibility of repeating a year if progress has been insufficient (ie 'rédoubler'), but though in the process of being phased out by the Hollande government, that is now under review[15]. Recent emphases have been on the continuity of schooling over the primary and early secondary phase, with distinct named 'phases' during which the basic curriculum should be mastered by all. Throughout the lower secondary years a common core of subjects is taught, with some technical or vocationally oriented lessons such as technology and life sciences. At that stage pupils are encouraged to take an interest in their eventual pathway with the option of additional vocational options.

For the primary and lower secondary years, the phases include the 'fundamental learning' cycle 2, (age 6-8) and the 'consolidation' cycle 3, (ages 8-11) to help transition to and include the first year of secondary. At secondary school pupils will be taught French, a modern foreign language, arts and music, PE and sport, history-geography, civic and moral education, mathematics, physics-chemistry, technology, life sciences (SVT) and have the option of learning a second foreign language or regional languages and culture. These subjects will be taught throughout the following years of the 'development' cycle 4 (12 -15/16) with a second foreign language added, more time for physics-chemistry, technology and life sciences (SVT) teaching and three optional courses offered under the headings of European, classical, and regional 'languages and culture' umbrella. ('Teaching Core and Common Skills and Knowledge', http://eduscol.education.fr/pid36587/teaching-programmes.html, Ministère de l'Education Nationale, *Informer et accompagner les professionnels de l'éducation*).
This analysis will now consider the arragements by age, stage and school.

École Maternelle Ages 3-6

Before formal schooling begins, children can from age three if their parents wish, go to a nursery school. The aims, set out centrally are to introduce young children to learning, to prepare them for primary school and to impart the principles of belonging to wider society. The pedagogic aims, also set out centrally, are to help develop individual personality, stimulate development of the senses, movement, learning and social development and to encourage a love of learning so that they can progress in school years and begin primary school (élémentaire) at 6.

The curriculum

The curriculum is organized under four general headings, the use of language, self expression and understanding through physical activity, artistic activity, developing the tools to structure thought and exploring the world[16].

Primary (Élémentaire) Ages 6-11

Primary school *(école élémentaire*) is for ages 6-11 with progression through five forms. Pedagogically teaching aims to encourage development under five main headings, themes. or 'domains: thinking and communicating, tools for learning, the development of the individual and the citizen, the natural and technical systems, and representations of the world and human activity in the world[17].
The idea is to encourage children to understand, express themselves, think and communicate.

The curriculum and qualifications

The foundation subjects include literacy, numeracy, geography/history and often a foreign language. Although there is no qualifying exam to move to secondary school, it is expected that by the transition a basic curriculum and foundations for French, art and music, PE and sport, civic and moral education, history and geography, science and technology, and mathematics will be mastered to facilitate pupils adapting to their first year of secondary school.

Secondary School Years: Collège and Lycée

Lower Secondary, ages 11-15: Collège[18]

Secondary school starts at 11 when pupils move to the collège to follow a common curriculum from 11-15[19]. The aim is to give all pupils a general education in a unitary system under arrangements proposed in the Haby Law of 1975[20]. That measure also stipulated that vocational classes could enrich the final years before pupils move to the three year 'lycées' and final exam, the 'baccalauréat'. From the start vocationally oriented subjects such as technology are taught as a timetabled subject along with life sciences initially under the science umbrella but from 12-13 as a separate timetabled subject and pupils are also expected throughout to consider the orientation they will choose at 16.

The Curriculum and Qualifications

Under law the curriculum obliges the teaching throughout the lower secondary phase of French, mathematics, history/geography, science – physics, chemistry, technology, life sciences (SVT), art, PE/ sport, a modern language. After the first year, a second modern language is added along with some civics teaching (ages 12- 15)[21]. In addition, the optional courses, 'enseignements facultatifs' give first year pupils the option of learning a second modern language and another option can be taken from 'regional languages and cultures'. In the following three years, a second language is obligatory, and the regional option continues along with two further options, 'European languages and cultures' and 'the languages and cultures of antiquity'. Options offered vary with each school. For instance, the academically focused Henri IV in Paris, or the humanities and languages-oriented Jules Ferry in Paris, include in their options facultatives, the 'languages and culture of antiquity', with ancient Greek and Latin. For the second foreign language, Henri IV offers German, English, Russian throughout (LV1 and LV 2) and Chinese, Spanish and Italian for the 13-15 stages. Jules Ferry offers German and English throughout, Russian for the 11-12 year olds and Spanish and Italian for 12-15s.*

* http://geolocalisation.onisep.fr/moncollege/75-paris/paris-5e/college/college-henri-iv.html#fiche_detail http://geolocalisation.onisep.fr/moncollege/75-paris/paris-9e/college/college-jules-ferry.html?quoi=jules-ferry&ou=ile-de-france&region=11 http://geolocalisation.onisep.fr/moncollege/75-paris/paris-5e/college/college-henri-iv.html#fiche_detail

---

Education_and_training_statistics_at_regional_level#Young_people_neither_in_employment_nor_in_education_or_training_.28NEETs.29
See: Figure 4- http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_young_people_aged_18%E2%80%9324_neither_in_employment_nor_in_education_or_training_(NEETs),_by_sex,_selected_NUTS_2_regions,_2016_(%25)_RYB17.png and Map 4- http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_young_people_aged_18%E2%80%9324_neither_in_employment_nor_in_education_or_training_(NEETs),_by_NUTS_2_regions,_2016_(%25)_RYB17.png
http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_young_people_aged_18–24_neither_in_employment_nor_in_education_or_training_(NEETs),_by_sex,_selected_NUTS_2_regions,_2016_(%25)_RYB17.png

15 Repetition in the event of failure at the end of a school year was almost eliminated in 2014 by the then Minister of Education, Najat Vallaud-Belkacem, who deemed them ineffective. The current Minister of Education, Jean-Michel Blanquer, has proposed reintroducing the systems in a bid to reinforce school standards.

16 Le programme d'enseignement. Il est organisé en cinq domaines d'apprentissage:
- Mobiliser le langage dans toutes ses dimensions
- Agir, s'exprimer, comprendre à travers l'activité physique
- Agir, s'exprimer, comprendre à travers les activités artistiques
- Construire les premiers outils pour structurer sa pensée
- Explorer le monde

(Présentation de l'école maternelle, Ministère de l'Éducation Nationale, http://eduscol.education.fr/cid103171/ecole-maternelle.html#lien0)See also http://www.education.gouv.fr/cid87300/rentree-2015-le-nouveau-programme-de-l-ecole-maternelle.html http://eduscol.education.fr/pid36587/teaching-programmes.html, Ministere de l'Education Nationale

17 **École élémentaire-Five forms of progression**
Cours préparatoire (CP) or 11ème – age 6 to 7 years old.
Learn how to learn, to encourage individual development and that as citizens, to understand the natural and understand the implications of human action for the world around us.
Cours élémentaire (CE1) or 10ème – age 7 to 8 years old
Cours élémentaire (CE2) or 9ème – age 8 to 9 years old
Cours moyen 1 (CM1) or 8ème – 9 to 10 years old
Cours moyen 2 (CM2) or 7ème – 10 to 11 years

Five domains:
Thinking and Communicating – to teach pupils how to understand and express themselves using French, other modern or regional languages, maths and science and the 'language of the arts and the body'.
Methods and Ways for Learning - pupils will be taught how to learn individually or collectively in or outside of classe, how to access information and documents, technological methods and how to lead individual/collective projects/, how to organize their work and study once accumulated.
Forming the Person and the Citizen - the fundamental values and principles of the constitution, how to live as a member of society, the meaning of citizenship, individual responsibilities and choice e.g. in the moral and civic programme, citizenship education.
Natural and Technical Systems - scientific and technological approach to the world, cultivating curiosity and observation, resolving problems
Representations of the World and Human Activity - 'spatial conscience of geography and history through understanding societies in their environment, interpreting human cultural productions, understanding the contemporary world around them.
http://eduscol.education.fr/cid61050/the-common-core-of-knowledge-skills-and-culture.html
http://www.education.gouv.fr/cid38/programmes-et-horaires-a-l-ecole-elementaire.html

18 Collège four form progression
6ème – 11 to 12 years old; 5ème – 12 to 13 years old; 4ème – 13 to 14 years old; 3ème – 14 to 15 years old

19 The collège in practice often constitutes the initial four years of an 11-18 school, the upper stage of which is entitled the Lycée)

20 Under the measure a distinction was introduced between primary and secondary educationwith primary ensuring that chileren had basic and fundamental knowledge and lower secondary education in colleges, organised in four stages, giving pupils an idea of the' orientation' they will follow professionally and requiring a unitary lower secondary system with the same type of education. The Haby law also highlighted the provision of optional courses in vocational subjects during lower secondary years and for pupils to consider their likely professional orientation.

21 'Cycles et horaires', Ministère de l'Éducation (http://eduscol.education.fr/cid101628/cycles-et-horaires.html)

Obligatory subjects and hours

11-12 year olds (sixième)

ENSEIGNEMENTS OBLIGATOIRES	HORAIRES HEBDOMADAIRES
Éducation physique et sportive	4 heures
Enseignements artistiques (*) (arts plastiques + éducation musicale)	1 heure + 1 heure
Français	4,5 heures
Histoire - Géographie - Enseignement moral et civique	3 heures
Langue vivante	4 heures
Mathématiques	4,5 heures
SVT, technologie, physique-chimie	4 heures
Total (**)	26 heures (***)
ENSEIGNEMENTS FACULTATIFS (****)	**HORAIRES HEBDOMADAIRES MAXIMUMS**
Deuxième langue vivante étrangère ou régionale	6 heures avec la langue vivante 1
Langues et cultures regionals	2 heures

12-13 year olds (cinquième), 13-14 year olds (quatrième), 14-15 year olds (troisième)

ENSEIGNEMENTS OBLIGATOIRES	Cinquième	Quatrième	Troisième
Éducation physique et sportive	3 heures	3 heures	3 heures
Enseignements artistiques (*) (arts plastiques + éducation musicale)	1 heure + 1 heure	1 heure + 1 heure	1 heure + 1 heure
Français	4,5 heures	4,5 heures	4 heures
Histoire - Géographie Enseignement moral et civique	3 heures	3 heures	3,5 heures
Langue vivante 1	3 heures	3 heures	3 heures
Langue vivante 2	2,5 heures	2,5 heures	2,5 heures
Mathématiques	3,5 heures	3,5 heures	3,5 heures
SVT	1,5 heure	1,5 heure	1,5 heure
Technologie	1,5 heure	1,5 heure	1,5 heure
Physique-chimie	1,5 heure	1,5 heure	1,5 heure
Total (**)		26 heures (***)	
ENSEIGNEMENTS FACULTATIFS (****)	**HORAIRES HEBDOMADAIRES MAXIMUMS**		
Langues et cultures européennes	2 heures	2 heures	2 heures
Langues et cultures de l'Antiquité	1 heure	3 heures	3 heures
Langues et cultures regionals	2 heures	2 heures	2 heures

Textes de référence

• Le décret n° 2013-682 du 24 juillet 2013 modifié relatif à l'école primaire et au collège précise l'organisation en quatre cycles pédagogiques de l'école primaire et du collège.
• Le décret n° 2015-544 du 19 mai 2015 et l'arrêté du 19 mai 2015 modifié, relatifs à l'organisation des enseignements du collège fixent les enseignements obligatoires et leur volumes horaires par discipline.
• L'arrêté du 16 juin 2017 modifiant l'arrêté du 19 mai 2015 (JO du 18 juin 2017, BO du 22 juin 2016) relatif à l'organisation des enseignements dans les classes de collège
• L'arrêté du 9 novembre 2015 publié au bulletin officiel spécial n°11 du 26 novembre 2015 définit les objectifs de chaque cycle de l'école élémentaire et du collège, ainsi que les programmes d'enseignement sur chacun de ces cycles.
Mis à jour le 15 septembre 2017

Qualifications

At 15/16, the written exam for the Brevet des collèges *(Diplôme National du Brevet)* or *Brevet des Collèges* is taken.


MINISTÈRE DE L'ÉDUCATION NATIONALE, DE L'ENSEIGNEMENT SUPÉRIEUR, DE LA RECHERCHE ET DE L'INSERTION PROFESSIONNELLE

ACADEMIE DE [redacted]

DEPARTEMENT DE L'ARDECHE

DIPLÔME NATIONAL DU BREVET

SÉRIE : [redacted]

Délivré à [redacted]

né(e) le [redacted] à [redacted] 26

Conformément au procès-verbal de l'examen établi le 06 JUILLET 1995 A PRIVAS par le président du jury

L'Inspecteur d'Académie, Directeur des services départementaux de l'Éducation

JEAN MICHEL SEVERINE

INSPECTION ACADÉMIQUE DE L'ARDÈCHE - ACADÉMIE DE GRENOBLE

Signature du titulaire :

The award of the brevet is based on a number of different elements: final written exams, an oral exam, and continuous assessment of achievement in the common foundations of knowledge, skills and culture under nationally set criteria, including results of classroom tests (évaluation du socle;'maîtrise du socle commun de connaissances, de compétences et de culture'). The four written exams are taken in French, mathematics, history-geography-civics, science-physics-chemistry-life and earth sciences (two out of three) and/or technology, the oral exam in an additional subject, e.g. history or art. Out of a possible total of 800 points, up to 400 points can be awarded for continuous assessment and 400 for the final exam, in respect of the written papers (300 points) and the oral exam (100 points)[22]. In addition a number of special options are offered, e.g. an international option, an option adapted for handicapped candidates or those with a personalized statement or for other individual candidates. (This option has in addition to the four standard subjects a written test in a modern foreign language chosen by the candidate).

Some pupils may take a professional series Brevet 9 (e.g. in agriculture) or a BP for which distinct subjects are set out to follow specifications for the troisième preparatory classes in professional teaching, agricultural tesching and the SEGPA classes[23].

Performance in the Brevet does not determine the pathway after 16. The decision about whether the next stage of education will be general, technological or vocational training, is taken with the involvement of pupils and their families and teachers and envisaged in the Haby Law.

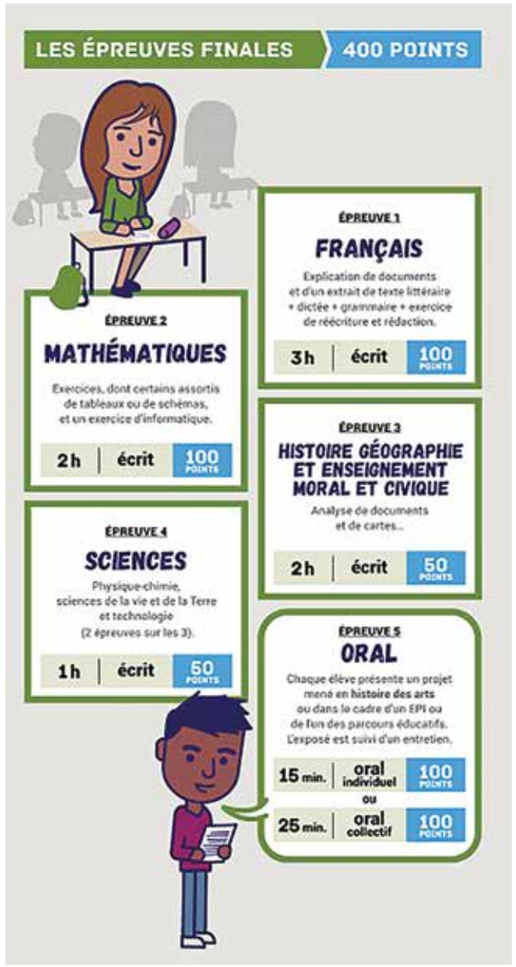
22 A total of 800 marks is awarded for the brevet, broken down as follows:
400 for continuous assessment (L'évaluation du socle commun)
400 for final examination (Les épreuves de l'examen représentent) - 300 points are for written papers and 100 points for the oral. (100 points each for French and mathematics, 50 points each for history-geography and sciences, 100 for the oral) – (http://www.education.gouv.fr/cid2619/le-diplome-national-du-brevet.html)
The pass mark is 400 out of 800, with results being classed as 'good enough' ('assez bien' more than 480 points), 'good' (bien more than 560 points) and very good' (très bien more than 640 points) with those getting 'good' and 'very good' eligible for bourses au mérite, cash prizes paid each year during the lycée years worth around 800 euros per annum. There are also opportunities for pupils who don't manage the marks, to be awarded a bourse on the basis of achievement in class.
http://www.education.gouv.fr/cid2619/le-diplome-national-du-brevet.html http://www.esen.education.fr/fr/ressources-par-type/outils-pour-agir/le-film-annuel-des-personnels-de-direction/detail-d-une-fiche/?a=61&cHash=132e4ec209
https://www.brevetdescolleges.fr/infos/bourses-au-merite.php
*Supplementary marks can be gained by candidates for optional courses according to the level reached at the end of the cycle.

Diplôme National du Brevet (DNB) Marks Allocation
Final Exam – 400 points

- Written Examination -Four written exams taken by all candidates together in French, maths, history-geography-civics. sciences -physics-chemistry, SVT-sciences, technology (2 subjects out of three)
- Oral Examination -100 points -An oral exam in one of the subjects covered by the teaching in the history of arts, or one of the interdisciplinary practical subjects in cycle 4 or one of the educative subjects, such as citizenship, health education, artistic and cultural education taken by the candidate. The format is an examination of 15 minutes, 5 for a presentation and 10 for a discussion. The pupil presents a subject of choice. The exam can be taken in groups of up to three with more time (25 mins in all) allocated, though candidates are evaluated individually.

The 'Modalités d'attribution du diplôme national du brevet' http://eduscol.education.fr/cid98239/modalites-d-attribution-du-diplome-national-du-brevet.html#lien2http://www.esen.education.fr/fr/ressources-par-type/outils-pour-agir/le-film-annuel-des-personnels-de-direction/detail-d-une-fiche/?a=61&cHash=132e4ec209

23 Modalités d'attribution du diplôme national du brevet, Ministère de l'Éducation, http://eduscol.education.fr/cid98239/modalites-d-attribution-du-diplome-national-du-brevet.html
For the criteria for evaluating fundamental knowledge and skills: (http://www.esen.education.fr/fr/ressources-par-type/outils-pour-agir/le-film-annuel-des-personnels-de-direction/detail-d-une-fiche/?a=61&cHash=132e4ec209)



Vocational specialization in main stream schooling pre-16

Vocational teaching can be offered in the later years as enrichment courses. In addition the curriculum gives all pupils the option of taking a specialist technological and life science paper as part of the science option and two papers out of three may be taken towards the Brevet's science component as follows: physique-chimie, sciences de la vie et de la terre, technologie (2 disciplines sur 3).

Schools can also specialize in technological options in the mainstream Brevet and take the technology exam as one of the science, tech, SVT papers, with either the science or life science paper as the second option. (see pp 32-33). Apart from the main stream curriculum, some schools may also offer some more focused technical, commercial or professional courses from 13/14.

Pupils, e.g. in the agricultural sector may take a professional series Brevet and there is also the option of a Brevet Professionel (BP), not to be confused with the later diploma, the BEP, for which pupils work in the lycée or during an apprenticeship, often taking it as an intermediate qualification before going on to take the *baccalauréat professional.*-

Upper-Secondary....16-19: Lycée General, Lycée Technologique, Lycée Professionnel[24]

Introduction – The tripartite system post 16

The duration of the upper secondary stage is three years from 16-19. After 16, the system aims more overtly to educate and train pupils for working life or further study after 18/19[25]. Three distinct pathways academic, technological or professional (i.e. vocational) are built into a tripartide school system and pupils move to a *Lycée Général* (academic) or a *Lycée Technologique* (technological) where they work towards a baccalauréat examination which is needed for university entrance. By contrast, pupils at the *Lycée Professionnel* (vocational) are prepared for a manual or clerical job or further vocational studies and different qualifications are offered. There, they will also be prepared for an intermediary vocational qualification such as the AP and BEP before going on to take the *baccalauréat professionnel* [26].

Lycée Général and Lycée Technologique

At both the lycée générale and the lycée technologique, pupils are taught the same common curriculum in the entry year and near the end of the first year they decide on the pathway.

The Curriculum and Qualifications

In the first year a common core of subjects is taught for around 80 percent of their time (seconde générale et technologique - 'cycle de détermination'[27]). These include French, history-geography, languages, maths, physics-chemistry, SVT (science de la vie et de a terre) PE and a weekly lesson on civic, juridicial and social education. There is some emphasis on vocational and professional education at this stage.

A decision is taken by the end of the first year about which *baccalauréat* will be taken from the range of options or 'series'. In the lycée général these are academic - literary studies, 'L' series, economic and social studies, 'ES' series, or sciences, 'S' series (thought to be the toughest). In the lycée technologique, there is a technological and business or scientific focus, equipping people to work in industry or preparing them for more advanced technological study at university level. (See below curriculum and qualifications). A foreign language may be taught, and the test results can count rowards the overall grade/marks. Those passing qualify for a place at a French university.

Sample timetable breakdown for first year of lycée

Timetable for initial year of Lycée - la seconde	
Core subjects: 80 percent of the pupils' timetable on core teaching in the following subjects	**Scheduled hours**
French	4 hr
History-Geography	3 hr
Living Languages, 1&2	5 hr 30
Mathematics	4 hr
Physics-Chemistry	3 hr
Life & earth sciences (SVT)	1 hr 30
PE & sport	2 hr
Civics	0 hr 30
Personalised/individual support	2 h or 72 yearly
Exploration teaching[28]	2 x 1 h 30
Total –Pupils' timetabled hours	28 h 30 (average)

24 The arrangement of schooling is often discussed in comparative data under age/year groups known as ISCED levels, (see: http://www.perfar.eu/policy/education/france). Upper secondary years will be known as (ISCED 3 This level of education is provided over a three-year period to pupils ages 15-18. The levels are as follows:
Pre-primary (ISCED 0). This level of education is provided in kindergartens for children ages 2/3-6.
Primary (ISCED 1). This level of education is provided in elementary schools for children ages 6-11.
Lower secondary (ISCED 2). This level of education is provided in four-year collèges for pupils ages 11-15.
Upper secondary (ISCED 3). This level of education is provided over a three-year period to pupils ages 15-18.
Higher education (ISCED 5 and 6).

25 Upper Secondary Education, 16-19
Seconde ("1st year of lycée education")
Première (2nd year)
Terminale (final year)
The professional diplomas offered in this period are in general fix by level and stage

26 There are also specialist Lycées du bâtiment and lycées agricoles specialise in building trades and agriculture
https://www.diplomatie.gouv.fr/en/the-ministry-and-its-network/protocol/social-matters/article/french-educational-system

27 'Les enseignements de la classe de seconde', Ministère de l'Éducation Nationale, http://www.education.gouv.fr/cid52692/les-enseignements-de-la-classe-de-seconde.html

28 Exploration lessons Two from this list:
The arts of the circus, creative activity, creative design culture, creative technological innovation, PE and sport, computers and digital creation, third living language, the languages and culture of antiquity, literature and society, scientific methods and practices, fundamentals of economy and management, health and social Studies, engineering sciences, economics and social sciences, sciences of the laboratory. ('Les enseignements de la classe de seconde', Ministère de l'Éducation Nationale, (http://www.education.gouv.fr/cid52692/les-enseignements-de-la-classe-de-seconde.html)

During the next two years, *Première* and *Terminale* pupils work on their chosen baccalauréat series.

In the lycée général, the subjects covered by the three options include in the literary series (L), French language and literature, living languages and philosophy; in the economic and social series (ES), economic and social science, maths and history-geography; and in the scientific series (S), maths and experimental sciences[29].

In the lycée technologique pupils begin the specialized series in the second year. They choose one from a series of eight, five of which are under the science and technology umbrella, the science and technology of sustainable industry and development (STI2D), of design and applied arts (STD2A), of administration and management (STMG), of health and related social sciences, (ST2S), of the sciences and technology of the laboratory (STL). Another option covers agronomy and living things (STAV), one the techniques of music and dance (TMD), and a final one the hotel business (hôtellerie)[30].

Sample Timetable - Obligatory and optional lessons over two years
Health and public health / Série sciences et technologies de la santé et du social (ST2S)

Enseignements	Classe de première Horaire par élève	Classe terminale Horaire par élève
Sciences et techniques sanitaires et sociales	7 h	8 h
Biologie et physiopathologie humaines	3 h	5 h
Français	3 h	-
Langues vivantes 1 et 2 (1)	3 h	3 h
Mathématiques	3 h	3 h
Sciences physiques et chimiques	3 h	3 h
Éducation physique et sportive (2)	2 h	2 h
Enseignement moral et civique	0h30	0h30
Histoire-géographie	1 h 30	1 h 30
Philosophie	-	2 h
Accompagnement personnalisé	2 h	2 h
Heures de vie de classe	10 h annuelles	10 h annuelles
Horaires des enseignements facultatifs		
L'élève peut suivre 2 enseignements facultatifs au maximum parmi les suivants: Éducation physique et sportive	3 h	3 h
Arts (3)	3h	3h

Source: 'Série sciences et technologies de la santé et du social (ST2S)', Ministère de l'Éducation Nationale (http://eduscol.education.fr/pid23171-cid58801/serie-st2s-renovee.html)

Sciences et technologies de l'industrie et du développement durable (STI2D)

Enseignements	Classe de première Horaire par élève	Classe terminale Horaire par élève
Français	3 h	-
Horaire par élève	1 heure + 1 heure	1 heure + 1 heure
Philosophie	-	2 h
Histoire-géographie	2 h	-
Langues vivantes (a)	3 heures	3 heures
Éducation physique et sportive	2 h	2 h
Enseignement moral et civique	0h30	0h30
Mathématiques (b)	1,5 heure	1,5 heure
Physique-chimie (b)	4 h	1,5 heure
Enseignements technologiques transversaux	7 h	5 h
Enseignement technologique en langue vivante 1 (a) (c)	2,5 heures	2,5 heures
Un enseignement technologique spécifique au choix parmi les suivants: • Architecture et construction (AC) • Energies et environnement (EE) • Innovation technologique et éco-conception (ITEC) • Systèmes d'information et numérique (SIN)	5 h	9 h
Accompagnement personnalisé (d)	1,5 heure	1,5 heure
Horaires des enseignements facultatifs		
Éducation physique et Sportive	3h	3h
Arts (e)	3h	3h
Additionally, students can follow an artistic workshop of 72 hours per annum		
Horaire professeur déduit des heures élèves	33h	33h

Source: 'Sciences et technologies de l'industrie et du développement durable (STI2D)', Ministère de l'Éducation Nationale (http://eduscol.education.fr/cid55493/serie-sti2d.html) In the technology series four themes which correspond to major sectors of industrial development are flagged up for special note - architecture and constuction; energy and the environment, innovation technology and eco designs and information systems'.

29 For further details, see http://www.education.gouv.fr/cid2570/la-voie-generale-au-lycee.html#La_s%C3%A9rie%20%C3%A9conomique%20et%20sociale%20(ES)

30 Since 2012 of the eight technological series have, that for music and dance is under the shared tutelage of the education and culture & communication departments, and that on agronomy under the Ministry of Agriculture.

31 'La voie technologique au lycée', Ministère de l'Éducation (http://www.education.gouv.fr/cid2604/la-voie-technologique-au-lycee.html#L'organisation_des%20enseignements%20de%20la%20seconde%20%C3%A0%20la%20terminale)

Lycée Professionnel
(Vocational/ Technical and Trades' School)

The lycée professionnel is a vocational school which offers pupils education and training across a number of sectors, both for contemporary industries and for the traditional teaching of the technical and trades schools. Pupils often prepare for manual or clerical jobs or further vocational studies. Through a mixture of general teaching, some applied teaching and training on the job or apprenticeships, the aim is to equip them for an occupation in one or more sectors and at different levels. Unlike the other two types of lycée, it is not primarily concerned with providing a pathway to higher education, although pupils may continue with further study and training.

Curriculum and Qualifications
The expectation is that general teaching will continue in core subjects, as well as technology, specialist vocational teaching and additional 'exploration' courses. For the *baccalauréat professionnel* the core or general curriculum includes French, history-geography and moral and civic education (EMC), maths, a foreign language, PE and sport, artistic education, and depending on the speciality, physical science and chemistry or a second foreign language.

Of the two exploration courses one has an economy theme and the other is taken from a set list of 14 with each timetabled for 90 minutes. The aim is to allow interest and aptitutudes to be explored and tested and to prepare for the pathway followed to *baccalauréat*. A special interest in technology is encouraged with the option of adding two technology subjects to the economy option. For those keen to focus on sport or creative design or circus arts one concentrated session a week on one of these can be substituted for other exploration courses[32].

The different vocational qualifications offered include the two year *Certificat d'Aptitude Professionnel* (CAP), or the *Brevet d'Enseignement Professionnel (*BEP), both intermediate diplomas and *the Baccalauréat Professionnel.*

Preparation for the CAP takes place in the lycée professionnel and that for a CAP agricole (Capa) is in

a lycée professionnel agricole and some work based training (des stages) forms part of the course. During the first year some lessons are linked to specific professional fields. The work based training is for 12-16 weeks spread over two years and the aim is to reinforce the class based teaching and practical training. Pupils follow a basic curriculum and spend a period on practical work in a factory, laboratory or building site in line with their specialism. The CAP has around 200 specialisms. The idea is that it leads to a working occupation though there is also a bridge to the professional baccalauréat after two years[33]. Overall content in the course is balanced between general lessons, technical lessons and professional lessons. The expectation is that basic education continues along with the general and specialist vocational education and training. The specification for the CAP history paper suggests that though course content is not as extensive as that for the *baccalauréat professionnel*, it combines breadth with some depth as the illustration below indicates. http://www.education.gouv.fr/cid2573/la-voie-professionnelle-au-lycee.html#Organisation_des%20enseignements

***The history curriculum for CAP (history-geography-civique)**
Organized in themes which run chronologically from 16th-20th centuries the curriculum has four themes - on the voyages of discovery in the 16th-18th century, the life of French workers in the 19th and 20th centuries, the French Republic and the European Wars and conflicts of the 20th century and for the *baccalauréat* professionnel this is 22 weeks, spread over the three years.

32 Exploratory lessons and technology option - first year of upper secondary

33 Recently a 'bridge' (passerelle) has been added to move between the second year of the CAP and la seconde professionnelle.

The history curriculum for CAP (history-geography-civique)

Histoire
Le programme insiste sur un certain nombre de grands changements culturels, économiques, politiques à l'époque moderne et leurs effets sur les sociétés en Europe et dans le monde. Il offre par ailleurs à l'étude les mutations sociales, économiques et politiques de la France de 1830 à nos jours.
On étudie au moins trois sujets d'étude parmi les quatre suivants. Pour chaque sujet d'étude, on étudie au moins une situation choisie parmi celles indiquées.

Sujets d'étude	Situations	Orientations et mots-clés
1. Voyages et découvertes, XVIème-XVIIIème siècle	- Christophe Colomb et la découverte de l'Amérique - Le tour du monde de Bougainville - James Cook et l'exploration du Pacifique	On montre que les **découvertes**, outre à des motifs économiques et géopolitiques, répondent, surtout au XVIIIème siècle, à une nouvelle soif de connaissances des Européens, notamment pour les terres, les hommes, la faune et la flore des nouveaux mondes. **Histoire des arts :** peintures navales ; Henri Queffelec « Le Voyage de la Boudeuse », etc.
2. Être ouvrier en France du XIXème au XXIème siècle	- 1892, Jean Jaurès et la grève de Carmaux - 1936, les occupations d'usine - Être ouvrier à… - Progrès techniques et transformation des conditions de travail dans un secteur de production, etc.	On rappelle l'évolution du monde ouvrier de 1830 à la fin des Trente Glorieuses. On présente la formation d'une conscience de classe à travers les luttes sociales et politiques **(grèves, syndicalisme, partis)** et le processus d'intégration républicaine. On étudie la condition ouvrière et l'impact des progrès techniques sur les conditions de travail. **Histoire des arts :** Louis Guilloux : « La Maison du peuple » ; chansons ouvrières, etc.
3. La République en France	- Le droit de vote en France : évolution et débats - Le président de la République sous la Vème République - République et laïcité : loi de 1905	La **République** a mis du temps à s'installer en France et a été souvent remise en cause. La question du vote a toujours été un débat, qu'il s'agisse du **suffrage universel**, du vote des femmes, ou de celui des étrangers. Sous le même vocable, le rôle du **président de la République** a été très différent selon les différentes républiques. La laïcité, inscrite dans la Constitution, est un principe essentiel de la République. **Histoire des arts :** « La Liberté guidant le peuple » de Delacroix ; affiches ; les photos officielles des présidents de la République, etc.
4. Guerres et conflits en Europe au XXème siècle	- Verdun et la mémoire de la bataille : une prise de conscience européenne ? - Le génocide juif : un crime contre l'humanité - Un conflit localisé récent	**Les causes et les typologies des conflits sont abordées à travers des exemples de guerre** au XXe siècle (unité nationale, guerre mondiale, guerre civile, conflit ethnique, etc.). Les conditions des batailles sont transformées par les bouleversements technologiques. Les notions de génocide et de **crime contre l'humanité** sont élaborées et reprises par le droit international. **Histoire des arts :** Zadkine : « La ville détruite » ; Otto Dix : « Der Krieg » ; Gromaire : « La Guerre » ; Vélickovic (sur les guerres de l'ex-Yougoslavie), etc.

Source: 'Programme d'enseignement d'histoire-géographie-éducation civique', Ministère de l'Éducation nationale (http://www.education.gouv.fr/cid50636/mene0925419a.html)
Classes préparatoires au certificat d'aptitude professionnelle- Histoire-Géographie-Éducation Civique
http://www.education.gouv.fr/cid50636/mene0925419a.html Annexe http://www.education.gouv.fr/cid50636/mene0925419a.html
The Introduction sets out the aims and goals :Le nouveau programme de CAP a pour but d'aider les élèves, les apprentis et les adultes en formation à mieux connaître et mieux comprendre en histoire la diversité des sociétés et la richesse des cultures, à mieux saisir en géographie les enjeux des relations entre les sociétés et les territoires, à exercer en éducation civique une citoyenneté responsable. Il se situe dans la continuité des apprentissages du collège et laisse au professeur une large initiative pour opérer des choix afin de prendre en compte la diversité des classes et des situations de formation.
and for the baccalauréat professionnel this is 22 weeks, spread over the three years

The Brevet d'études professionnelles (BEP) is a national diploma for a professional qualification certifying that a specific level of professional competence has been reached. The BEP includes courses and training in practical occupations for working in fields such as driving and transport, social provision, catering and hospitality and the diploma can be taken before the baccalauréat professionnel with which it is linked as an intermediary diploma. The courses, taken over two years, are under the remit set out by the ministry of education on the advice of a professional consultative commission. http://www.education.gouv.fr/cid2573/la-voie-professionnelle-au-lycee.html#Organisation_des%20enseignements

The BEP diploma can be awarded on the basis of an exam or on the basis of experience (VAE validation des acquis de l'experience). The exam has five components (though for some diplomas there can be a dispensation for one or more) and the pass mark is 50 per cent. School candidates take the exam in one session, whereas other candidates can take it in one or more sessions. To be examined on the basis of experience candidates with special knowledge and experience of the proposed specialism, can apply for validation through experience towards the whole, or a partial, BEP diploma - which applies to candidates in paid professional activity or in unpaid, voluntary or charitable work.
http://eduscol.education.fr/cid47633/les-diplomes-professionnels.html http://eduscol.education.fr/cid47638/le-brevet-d-etudes-professionnelles-bep.html http://eduscol.education.fr/cid99549/ressources-technologie-c4.html

For the baccalauréat professionnel, of which there are 100 specialisisms, the course, over three years (the seconde, the première, the terminale professionnelle), consists of general teaching, professional lessons and practical work[34]. Work is pitched at a comparatively high level and work experience for the baccalauréat professionnel is for 22 weeks spread over the three years. The curriculum too is organized over three years.

To give an example of the type of curriculum and standards here is an illustration of the history paper from the hist-geog-civic course. It covers the 16th to the 20th centuries over three years, each year organized thematically and chronologically. The papers by year are:

- The Europeans and the world 16th - 18th centuries ('Seconde')
- The State and Society in France from 1830 to the present day – ('Première')
- The world from the 20th to the beginning of the 21st century - (Terminale)

Sample curriculum (history only) for each of these years

Classe de seconde

HISTOIRE - Les Européens et le monde (XVIe-XVIIIe siècle)

Le programme insiste sur un certain nombre de grands changements culturels, économiques, politiques à l'époque moderne et leurs effets sur les sociétés en Europe et dans le monde.

On étudie trois sujets d'étude choisis parmi les quatre suivants. Pour chaque sujet d'étude, on retient au moins une situation parmi celles indiquées et on garde la liberté d'en traiter d'autres tirées de la liste du programme ou à l'initiative de l'enseignant.

Sujets d'étude	Une situation au moins	Orientations et mots-clés
1. Humanisme et Renaissance	- Erasme et l'Europe - Vinci et la représentation du corps - La controverse de Valladolid	On présente la **Renaissance** comme un mouvement d'innovations dans tous les domaines de la culture, arts et savoirs, revendiquant des héritages de l'Antiquité. On en présente les grandes figures que sont l'artiste et **l'humaniste** et on en montre la diffusion notamment par l'imprimerie.
2. Voyages et découvertes, XVIe-XVIIIe siècle	- Christophe Colomb et la découverte de l'Amérique - Le tour du monde de Bougainville - James Cook et l'exploration du Pacifique	On montre que les **découvertes**, outre à des motifs économiques et géopolitiques, répondent, surtout au XVIIIe siècle, à une nouvelle soif de connaissances des Européens, notamment pour les terres, les hommes, la faune et la flore des nouveaux mondes.
3. Le premier empire colonial français, XVIe-XVIIIe siècle	- La compagnie des Indes orientales - Nantes ou Bordeaux et le commerce triangulaire - Une plantation	A l'aide de cartes, on décrit le premier empire colonial français, du Canada aux Indes. On montre le développement du commerce fondé sur l'**exclusif**. On présente l'économie de **plantation**, la **traite** et l'**esclavage** et leur remise en question au temps des Lumières et de la Révolution française.
4. Les Lumières, la Révolution française et l'Europe : les droits de l'Homme	- Diderot à la cour de Russie - Protestants et Juifs en France à la fin du XVIIIe siècle - La nuit du 4 août	On présente les idées des Lumières développées par les philosophes face à l'absolutisme – **liberté de conscience, égalité des droits** – et leur rayonnement en Europe. On insiste sur le rôle de la Révolution française qui, en proclamant les **droits de l'Homme** et en les mettant en œuvre, a contribué à rendre ces **principes universels**.

34 Core lessons: Academic teaching includes French, history-geography, civics (EMC), mathematics, a living language, PE and sport, an artistic option in line with a pupil's specialisms, a science option–physics-chemistry or a second living language. 'La voie professionnelle au lycée', Ministère de l'Éducation (http://www.education.gouv.fr/cid2573/la-voie-professionnelle-au-lycee.html#Organisation_des%20enseignements)

Classe terminale

HISTOIRE - Le monde au XX^e siècle et au début du XXI^e siècle

Le XX^e siècle – de 1914 à 1990 – est abordé ici à travers quelques thèmes permettant d'éclairer cette période d'affrontements meurtriers, de combats des idéologies, de progrès technologique, économique et social, de tentatives d'organisations mondiales et régionales. On traite également le XXI^e siècle, tel qu'il se dessine depuis la chute du Mur de Berlin.

Les sujets d'étude sont tous obligatoires. Pour chaque sujet d'étude, on retient au moins une situation parmi celles indiquées et on garde la liberté d'en traiter d'autres tirées de la liste du programme ou à l'initiative de l'enseignant.

Sujets d'étude	Une situation au moins	Orientations et mots-clés
1. Les États-Unis et le monde (1917-1989)	- Les 14 points de Wilson - Le plan Marshall et le début de la guerre froide	On montre l'engagement des États-Unis dans les **deux guerres mondiales** et dans la **guerre froide** et leur rôle moteur dans l'économie mondiale, qui contribuent à la construction de la **puissance** américaine. On analyse les tentations de repli (isolationnisme) et les échecs (Vietnam). On explique comment les États-Unis ont défendu voire imposé leur modèle économique (**capitalisme**) et politique (**démocratie libérale**).
2. L'idée d'Europe au XX^e siècle	- Le plan Schuman - Kohl - Mitterrand et l'Europe	On étudie les grands projets politiques et économiques d'union de l'Europe, les débats et les oppositions qu'ils suscitent (**supranationalité, fédéralisme**). On montre les réalisations éphémères ou durables (projet de Briand, marché commun initié par Schuman et Adenauer) en les replaçant dans leurs contextes. On souligne le renouvellement de la question de la **construction européenne** à la suite de la **disparition des blocs**.
3. La décolonisation et la construction de nouveaux États : Inde, Algérie	- Gandhi et la non-violence - La Toussaint 1954	On montre, à travers l'Inde et l'Algérie, les luttes coloniales et deux processus de **décolonisation** – pacifique et militaire - tandis que les **indépendances** s'accompagnent de transferts de population. On insiste sur les similitudes entre les deux pays (**non-alignement**) et sur leurs choix de systèmes politiques et économiques différents.
4. Le monde depuis le tournant des années 1990	- La chute du Mur de Berlin - Le 11 septembre 2001	On présente les années 1990, **l'effondrement du modèle soviétique** et la victoire de la démocratie libérale et de l'économie de marché. On insiste sur les **crises** qui marquent le début de cette nouvelle période : **génocides** en Afrique et en Europe - Rwanda, Srebrenica –, **terrorisme** – 11 septembre -, conflits qui opposent des États et des réseaux, interventions militaires des États-Unis et de leurs alliés.

http://www.education.gouv.fr/pid25535/bulletin_officiel.html?cid_bo=60641 H=history paper hist- Ministère de l'Éducation Nationale, Bulletin officiel spécial n° 2, 19 février 2009, pp 2/12, 5/12, 8/12 http://cache.media.education.gouv.fr/file/special_2/24/7/histoire_geo_education_civique_44247.pdf
For the bac prof, the history curriculum (hist-geog-civ-) is taught over three years Source: Bulletin officiel spécial n° 2 du 19 février 2009, Histoire - Géographie - Éducation civique, Ministère de l'Éducation nationale (http://cache.media.education.gouv.fr/file/special_2/24/7/histoire_geo_education_civique_44247.pdf)

CONCLUDING REMARKS - FRENCH EDUCATION

The French system has traditionally aimed for high standards of general education throughout the school years. Before 16 pupils are taught a full curriculum of general academic subjects such as French, mathematics, science, history and geography. All pupils are also taught technology, and there is some scope for exploring vocational options, encouraged but not mandatory in the early years with pupils being offered optional courses and the opportunity to consider the orientation they will follow later on as part of the secondary curriculum. They can, under the science umbrella, also take the SVT (life sciences) course. Although lower secondary schools are not officially selective, the system is not uniform and there can often be some informal selection at 11. Many collèges are the lower forms of an 11-18 school, the curriculum and teaching of which reflect its aims and goals with pupils given a place on the basis of academic merit in a system in which ability is prized, and schools compete for the best candidates.

After 16 the system is expressly selective, with general, technological and vocational education in a formalized tripartite system of three institutions, the lycée technologique, the lycée général and the lycée professionnel. Although the assumption is that pupils decide on the pathway by 15 or 16, there are links between the lycée technologique and the lycée général. The technology baccalauréat like the academic (or general) baccalauréat is needed for university entrance. The professional baccalauréat and its intermediate vocational qualifications, CAP or BEP, tend to be occupationally focused. Although there are opportunities to move to higher education and training, that is not normally envisaged.

While the curriculum for all ages, including for the post-16 vocational subjects, is academically strong, some pupils are left behind and one weakness of the system here as elsewhere is that some pupils miss out. Some lower attainers fail to make up the gap by 15, and the Pisa international test scores suggest that children from immigrant backgrounds lagged behind the age cohort in science (by 10 points), while overall rates for young people not in education or training or unemployment can be high.

French schooling depends on having a supply of academically able and qualified teachers in the subjects to be taught. Entry to the profession is by competitive examination, with different specifications for the different ages and stages as well as for general, technical and vocational teaching. Traditionally the profession has attracted some of the most academically able. Entrants have a degree in their subject or have been to the Grandes Écoles and, under the 2013 arrangements for teacher training, they will take a professional course in a designated university department leading to a master's degree. Primary teachers, who have traditionally had a separate formation, are expected to know the subjects of primary curriculum to a high standard (the equivalent of baccalauréat + 5 years at university level).

For many, the jewel in the French crown remains the education of the most able who towards the end of the lycée years, are given specialist teaching for two years to qualify them for the Grandes Écoles and the course leading to the aggrégation, the formal qualification. These are the traditional training grounds for the most able pupils for a range of occupations, from running the government or France's successful industries and companies, to leading the highly skilled engineering, aeronautical and other industries and the service sector, on which France, for centuries has had a historic lead. That success is backed up by a focused technological path linked to the academic.

But even before 16 the foundations are in place for high levels of general education during secondary school years and backed up after 16 by education and training in niche areas and a strong technology stream through school, and a diverse post-16 and tertiary stage. France, often despite its economic indicators, remains a leading economy with a strong focus in certain sectors, thanks to its highly educated scientific, engineering, business and administrative sectors backed by a system where the link between education and training is inseparable.

4

THE UK (ENGLAND)

INTRODUCTION - OVERCOMING A LEGACY OF DECLINE

In many parts of the UK the legacy of the industrial revolution continued long after the decline of its once successful industries. Given the range of industries, iron and steel, ship building, coal mining, textiles, potteries and given their geographic spread and economic value, the consequences of decline were likely to be serious both nationally and for local communities. To alleviate the problems governments have resorted to a range of general policies, economic, social welfare and labour market. But to reverse decline it is imperative that education standards are raised and an effective system of vocational training introduced.

Geographically the areas have been the focus for redistribution of funds and jobs. Already characterized by high levels of public sector employment - the North East with 20.2 per cent, the North West with 18.3 per cent, Yorkshire and the Humber with 18.1 per cent, local and central government continue to be major employers[35]. Civil service posts continue to be transferred to these and other parts of the country.[36] Today around 27 per cent of all civil service posts are in the North West, Yorshire and the Humber, and the North East and only 18.6 per cent are now based in London [37]. Politically, the focus has been on managing the consequences of an indsutry's closure and ameliorating its shorter term political impact. In the case of steel and the recent closure of the Redcar SSI UK plant and redundancies at plants operated by Tata SteelUK and others, a five prong plan to support the UK steel industry was announced to lower costs for the industry, reduce the impact of EU regulation, and improve the order books through government procurement[38].

The redistribution of jobs may alleviate some general consequences of decline (and reduce overall civil service operating costs), the political intervention may temper the stark impact of a closure. But much will be down to longer term structural economic reform - fiscal and regulatory - and the restoration of inncentive needed if new business is to take the place of old.

Much will also depend on how successfully the education and training system can play its part and equip people for the high skilled labour markets of the future, whether to exploit new opportunities or to help those already in the labour force adapt to new product markets or models.

One illustration of the labour force adapting comes from Crewe in the north west, formerly a historic centre for locomotive production and repairs in the UK, producing 7,000 steam locomotives in the decades after the 1840s (1845-1958). When by 1991 the building of new trains ended, the centre continued as a vehicle and component repair centre. Acquired by the Canadian firm, Bombardier in 2001, it is now a centre for component re-engineering & overhaul for bogies (undercarriages), wheels & traction[39]. Crewe was also a centre for pre-war and wartime Rolls Royce aircraft engine production (in 1943 alone it produced 25,000 Merlin engines), and when the aero engine operations were later moved to Derby, it became a post war centre for RR motor car production and now manufactures Bentley cars under the parent ownership of Volkswagen.

The example of Crewe raises other questions about the factors which contribute to UK producers being superseded by others. Bombardier[40], which acquired

35 Public Sector Employment: UK September 2016, ONS, March 2017, Figure 9, 'Proportion of UK total employet employed in the public sector by region, Sept 2016', (https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/publicsectoremployment/september2016)

36 ibid; Civil Service Statistics ONS statistical bulletin, 31 March 2009, ONS Statistical Bulletin.Table 10: Regional Distribution- Percentage breakdown of Civil Servants by Government Office Region. The 2009 figures showed 16 per cent of UK based civil servants worked in London and almost 74 per cent (or ¾,) worked outside London and the South East, 9.7 per cent in Scotland, 6.9 ercent in Wales (https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/civilservicestatistics/2017),.

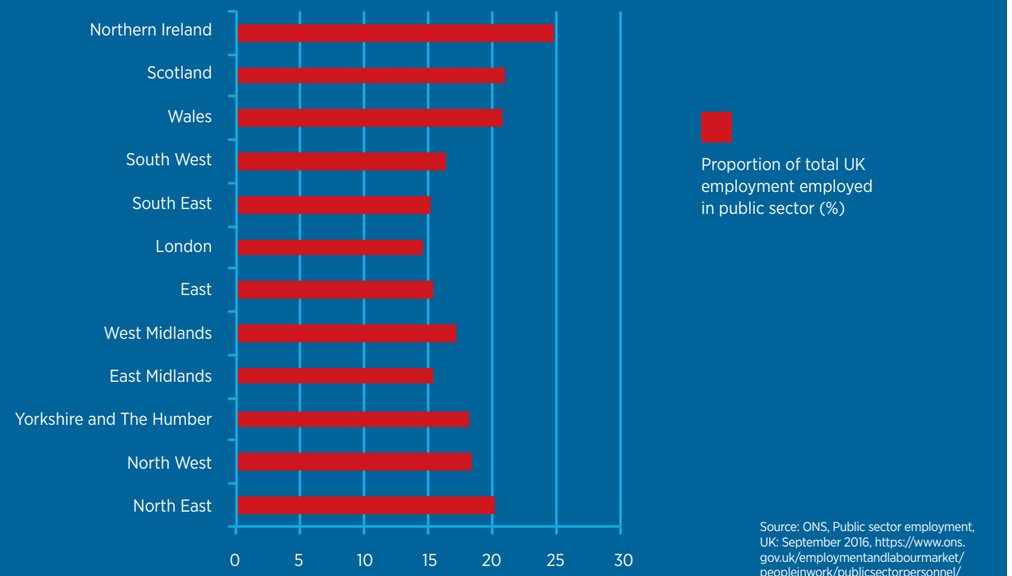
37 Civil Service statistics, 19 July 2017, Figure 6: UK Civil Service employment at 31 March 2017, distribution by region, The 2017 breakdown was 18.6 per cent for London, 12.4 per cent for the North West, 10.3 per cent for Scotland, 7.5 per cent for Yorkshir & the Humber, 6.9 per cent for the North East, 6.3 per cent for the West Midlands and 4.6 per cent for the East Midlands. (For the other areas the figures were 9.1 per cent for the S East, 8.8 per cent for the S west, and 1 per cent for overseas.)

38 House of Commons, Business, Innovation and Skills Committee, The UK steel industry: Government response to the crisis: Government Response to the Committee's First Report of Session 2015–16, Third Special Report of Session 2015–16, 23 February 2016 HC 861. (https://publications.parliament.uk/pa/cm201516/cmselect/cmbis/861/861.pdf)
The five proposals involved lowering energy costs in line with EU state aid approval rules, giving the industry a longer lead- in time for compliance with EU regulations, procurement arrangements for government departments, lobbying the EU and internationally on anti-dumping trading practices and by reviewing business rates.

39 Bombardier, 'Site fact sheet', (http://uk.bombardier.com/content/dam/Websites/bombardiercom/Sites/supporting-documents/Bombardier-Transportation-SiteFactSheet-Crewe-UK_2014-02.pdf)

40 http://www.bombardier.com/en/home.html

PROPORTION OF TOTAL UK EMPLOYMENT EMPLOYED IN PUBLIC SECTOR, BY REGION, SEPTEMBER 2016, NOT SEASONALLY ADJUSTED (%)



Source: ONS, Public sector employment, UK: September 2016, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/publicsectoremployment/september2016

the centre as a vehicle and component repair centre, is one of the four main train manufacturers which feature in the bigger picture of the UK's locomotive production, the three other major companies being the Japanese Hitachi Rail Europe[41], the German, Siemens[42] and the French, Alstom[43]. There may be lessons for Britain to learn from its two continental neighbours' education and training systems - quite apart from the basis for their production models: the French system, for instance has promoted the most academically able talent in engineering and other spheres, and like Germany combines vocational and technological training with high standards of continuing general education.

By contrast this country, though poised to follow the same path as its neighbours when it extended secondary age education to all after World War 2, failed to develop technical education, abolished most of the academically focused grammar schools and imposed a uniformly low level curriculum and exam system for all. Later attempts were made from the 1980s to plug gaps with new schools, 'specialist' and technology schools and introduce some specialization in mainstream schooling. But the mix of funding and qualifications policies and priorities for the post-16 FE sector has meant that education and vocational training to equip the workforce has very often been at the mercy of stop gap solutions when its local industry closes its doors.

The difficult task of reversing the decades of education decline and vocational training failure has now become a political and economic priority as the UK seeks to reshape its global economic and trade outlook to exploit the opportunities for trade and market expansion after the country leaves the EU in March 2019. As the government embarks on the reform of post 16 vocational and technological education and training, further thought will be needed if the labour market is to be equipped with the levels of education and training needed for Britain to take a lead in the high skilled industries of the future. In the pages which follow, the system will be considered with a view to proposing where policy might be adapted or refined as this country prepares its economy and labour market for the future. Because the UK has four different education systems, that of England will be analysed here, though similar factors may be relevant to or found in the systems of Wales, Northern Ireland and Scotland, each of which follows its own arrangements.

41 http://www.hitachirail-eu.com/

42 https://www.siemens.com/uk/en/home.html

43 http://www.alstom.com/

THE SYSTEM TODAY

Compulsory school age in England is from 5 to 16, and generally takes place in primary school ages 5-10/11 and secondary schools for ages 11-18 or 11-16. At 16 pupils take the intermediate exam, the GCSE, and post 16 year olds are now obliged to stay in full time education or in an apprenticeship with part time education until 18. Aftter 16 the choice is to continue at secondary school until A levels at 18, move to a vocational FE college (further education 16-19) or go into an apprenticeship with continuing part time education to take vocational qualifications.

Pupils in maintained schools have a common curriculum until age 14 and are taught English maths and science (core subjects) and a range of other 'foundation subjects' - citizenship, computing, PE, subjects which are obligatory through the school years to 16 as well as art and design, design and technology, languages, geography, history and music, obligatory until 14 when pupils prepare for GCSE.

Traditionally, English education has increasingly avoided an academic focus and the system, since the late 1970s has in general been uniform despite the variation of school structure or content. Although the 2010 reforms aimed to reverse declining academic standards, nonetheless some of the focus of the individual parts remains muddled, while the academic qualifications needed to teach at school are as a whole pitched far lower than those in France and Germany.

The school curriculum

	Key stage 1	Key stage 2	Key stage 3	Key stage 4
Age	5-7	7-11	11-14	14-16
Year Groups	1-2	3-6	7-9	10-11
Core subjects				
English	✓	✓	✓	✓
Mathematics	✓	✓	✓	✓
Science	✓	✓	✓	✓
Foundation subjects				
Art and design	✓	✓	✓	
Citizenship			✓	✓
Computing	✓	✓	✓	✓
Design and technology	✓	✓	✓	
Languages		✓	✓	
Geography	✓	✓	✓	
History	✓	✓	✓	
Music	✓	✓	✓	
Physical education	✓	✓	✓	✓

Note Until age 11 pupils can learn a 'foreign language' (including Latin) but from 11-16, the obligation is to teach a modern foreign language'.
Source: Figure 1 – Structure of the national curriculum, 'The national curriculum in England, Key stages 1 and 2 framework document', DFE-00178-2013, Department for Education, September 2013.

For teachers the general entry requirements are to have maths and English GCSE at A-C grade, (with science GCSE also needed for primary teaching), to pass a basic skills proficiency test in numeracy and literacy and to have taken a bachelor's degree. That degree however can be in 'education', e.g. a B.Ed, not maths or French or the subject(s) to be taught at school. This means that unlike France or Germany, our secondary teachers are not obliged to know the subjects they will teach to university degree level or joint second year honours standard, their degree need only be 'relevant'. Primary school teachers may not even have taken three subjects of the primary curriculum to A level standard. It is true that candidates can now take an SKE (Subject Knowledge Enrichment) course in the subjects they will teach for 12 weeks (in some cases for up to 28 weeks). The problem however remains the fundamental one of approach: the message is that entrants to the profession are not obliged to be of a high academic standard or be very well educated; nor do they need to have studied the subject they will teach in any depth. Instead they can be 'trained up' to teach the curriculum.

Nursery Age: Pre 5 years

Nursery provision for all 3 and 4 year olds has a dual aim, to provide 'free' childcare for young children facilitating their mothers' return to the labour market while promoting some early years education. That became a cross party policy, driven by the labour market policies of successive governments since the 1990s and the desire by many women to return to work without the expense of paying large sums for childcare. The last Labour government's Chancellor, Gordon Brown, intent on increasing the overall proportion of people in the labour market, encouraged the return of mothers of young children to work, and facilitated the funding of nursery places initially for four year olds, and later for three year olds. The policy further developed from 2010 under the Coalition and Conservative governments, as politicians committed to the goal of providing free childcare for young children for which taxpayers would meet the bill. This can range from nursery education to basic childminding, with the state now offering up to 570 hours a year of 'free early education or childcare' for 3 and 4 year olds, the forms of which can vary, normally taken as 15 hours a week for 38 weeks. Schools are one of four options, the others being a registered childminder, playscheme, nursery or club, a childminder with a childminding agency registered by the school inspectorate, OFSTED, or a home careworker working for a registered home care agency[44]. Double the hours is awarded if both parents are working for 16 hours a week and earning at least the minimm wage, or if either partner has a taxable income over £100,000. (Some 2 year olds are also eligible for 15 hours provided parents are on certain benefits.) The free childcare stops once the child starts in the reception class of primary school or reaches compulsory school age if later

Notwithstanding the overlapping of childcare with education, the curriculum for these years sets out the standards for learning, development and care of the child from birth to 5 years old, which shools, preschools, childminders and nurseries must follow. (Early Years Foundation Stage EYFS).

Children will be taught through games and play across seven areas of learning[45]. In literacy the expectation is that children could read and understand simple sentence, use phonics to decode standard words and read them aloud and read some uncommon words (ELG09). In writing they should be able to write simple sentences which they or others can read, with some words correctly spelled (ELG10). In numbers, the goals include the expectation that they should be able to count from 1-20, put numbers in order and say which 'is one more or one less' than a given number, subtract 2 single digit numbers (ELG 11). They should be able to talk about size, weight, position, capacity, distance, time and money in every day language and explore shapes and objects (ELG 12)[46].

44 It begins the term after the child's 3rd birthday, provided it is with an approved childcare provider. ('Help paying for childcare', https://www.gov.uk/help-with-childcare-costs)

45 These are communication and language, physical development, personal, social and emotional development, literacy, maths, understanding the world, expressive arts and design and will be assessed between 2-3 by a health visitor or erly years practitioner and a class teacher at 5 https://www.gov.uk/early-years-foundation-stage Childen will be assessed on the basis of how well they do in 17 ELG (early learning goals) 'goals' and in respect of what is officially described as ' 3 characteristics of effective learning' in an EYFS profile assessment, a guidance document issued by the official agency. Early Years Foundation Stage Profile 2017 Handbook, Standards and Testing Agency, 2016.

46 See: Specific areas of learning and their associated ELGs Literacy, 6.2., pp 29-30, Early Years Foundation Stage Profile 2017 Handbook, Standards and Testing Agency, 2016 (https://www.foundationyears.org.uk/files/2017/02/2017_EYFSP_handbook_v1.1.pdf)
Early Years Foundation Stage Profile 2017 Handbook, Standards and Testing Agency, 2016 (https://www.foundationyears.org.uk/files/2017/02/2017_EYFSP_handbook_v1.1.pdf)

Such goals appear educationally ambitious for nursery age children but the educational success of nursery schooling is bound to be patchy. Some young children miss out on one-to-one social induction and training which is difficult to provide for large numbers of very young children in a nursery class or crèche facility. When nursery entitlement stops at 5 some children arrive at the reception classes of primary school unprepared and ill equipped.

Primary Age: 5-11 years

Primary school generally covers ages 5-11. It has two main stages, infant (ages 5-7) and junior (ages 7-11) as well as well as covering the under 5s (nursery). The official aim for primary school is to teach basic literacy and numeracy, the foundations in science, mathematics and other subjects.

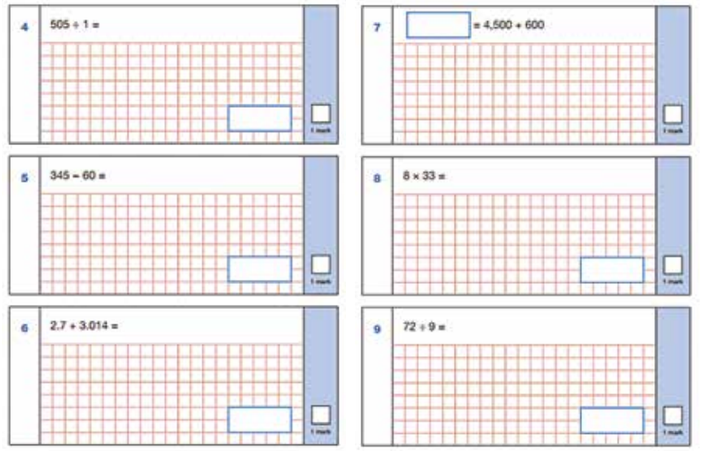
The Curriculum and Assessment

Pupils are taught English maths and science (core subjects) and a range of other 'foundation subjects', art and design, citizenship, computing, design and tehnology languages, geography, history, music and PE. The official framework for the national curriculum ages 5-7 (Key Stage 1) and 7-11 (Key Stage 2) sets out the information on the overall aims and programme of study for all subjects.

THE SCHOOL CURRICULUM

Note Until age 11 pupils can learn a 'foreign language' (including Latin) but from 11-16, the obligation is to teach a modern foreign language'.
Source: Figure 1 – Structure of the national curriculum, 'The national curriculum in England, Key stages 1 and 2 framework document', DFE-00178-2013, Department for Education, September 2013.

TWO SAMPLE PAGES FROM KEY STAGE 2 MATHEMATICS TEST



Source: 'Key Stage 2 (age 7-11) Tests: 2017 mathematics test materials', Department for Education (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614656/STA177736e_2017_key_stage_2_mathematics_paper_1_arithmetic.pdf. Contains public sector information licensed under the Open Government Licence v3.0)

For example, pupils by the end of primary school in English should 'be able to read fluently and with confidence in any subject in their forthcoming secondary education' (the phonics method to be used) and be able to write having been taught transcription (spelling and handwriting) and composition (articulating ideas and structuring them in speech and writing). In mathematics, from being able to count (year 1) they should have become 'fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages' in year 6. (The national curriculum in England, Key stages 1 and 2 framework document, DfE, September 2013.) Tests are taken at 7 and 11 and pupils move to secondary school at age 11, or, as in parts of England, to middle schools which cover a 'middle' age range between c. 9 and 13 years a model also common to the independent sector and popular with parents.

SECONDARY EDUCATION – ONE SYSTEM FOR ALL ?

In England today, secondary schools can be for 11-18 year olds, 11-16s and 11-19s. Under the broad umbrella of secondary stage schools different sub-categories and structures exist: community schools under local council control, academies, CTCs, free schools, foundation, trust and voluntary aided schools, mainly under independent governing bodies[47]. A small number (163) of grammar schools remain under councils which historically retained selection. Despite the different structures, academic subject standards tend to be pitched at the same level for all pupils, though some extension work can be given to the most able. All pupils take the intermediate GCSE exam at 16+ and after 16 they can continue in general education to take the school leaving A level exam at 18+. Or they can move to a further education (FE) college and follow a vocational education course. (Vocational Education will be dealt with below separately.)

The system is therefore uniform and comprehensive, though with small variations at the edges. In general selective schooling other than under a minority of councils which retained it has been ruled out since the 1960s when abolished by a Labour government in 1965 (with a brief stay of execution in 1970-74 when Labour re-imposed its policy)[48]. It remains a politically controversial subject and the small number of grammar schools that survive in England represent a tiny proportion of schools amongst the country's 3,000 maintained secondary schools. The prime minister has put on hold her plan of increasing the numbers given the political opposition, especially by the Labour Party and the teachers' unions.

To meet some of the failings, raise standards and more generally tackle the problems posed by the uniform comprehensive model and the gap in vocational and technical teaching, a greater variety of schools was introduced in the decades after the 1980s. City Technology Colleges, with a focus on vocational and technological education, were proposed in the late 1980s and followed by new academies, specialist schools, and after 2010 by a further wave of academies along with independent free schools. Although the impact on standards of such initiatives is difficult to measure, these schools differed in being freed from local authority control, some were exempt from the obligation to teach the national curriculum, instead offering one or more specialist courses, and a number were supported by business and individual philantrophists.

Curriculum and Qualifications

Pupils must be taught the national curriculum subjects at secondary school except in the exempt schools. For the first phase of secondary school for 11-14 year olds English, maths, science, history, geography, modern foreign languages, design and technology, art and design, music, physical education, citizenship, computing are obligatory. For the next stage, 14-16, English, maths, science (core subjects), computing, physical education, citizenship, are compulsory for GCSE as well as one subject from the following groups, arts, design and technology, humanities, modern foreign languages. Under the newly reformed GCSE structure, subjects will be examined under the revised format and results based on marked examinations taken together at the end of the course. (The only permitted retakes will be in English and Maths in the November following the exam)

After 16 for those staying in general education there will be two years to prepare for the school leaving exam, the reformed two year A level, needed for university entrance and taken in 3 or more subjects with assessment based on a written exam at the end of two years. Although new AS levels can be taken after a year and be taught with the first year of A levels, these will not be linked to A levels and will not count to the A level exam.

VOCATIONAL EDUCATION

Secondary Years: 11-16

Ending selection from the 1960s had consequences for vocational and technical education and training. Although in principle technical education should have been developed under the 1944 Act, with new secondary technical schools taking their place along with grammar schools and secondary moderns in the tripartide system, that was slow to happen. LEAs were unable or unwilling to finance such development, and the number of technical schools shrunk dramatically from 300 in 1947 to around 100 by 1970, with many offering the same curriculum as other schools towards the same GCE O- and A- levels, with vocational options being taken alongside by some puupils. With the change to comprehensive education, technical schools tended to be absorbed into the system and numbers dwindled from 84,500 in 1965 to fewer than 2,500 by the 1980s.

The upshot was that vocational or technical teaching for the under 16s, which had suffered initially from a failure to build and develop a wave of new schools in the 1950s and 1960s, subsequently became something

47 CTCs began in 1985, academies in 2000 and expanded under the Academies Act 2010 under which all primary and secondary schools could apply to become an academy.

48 Circular 10/65 asked local authorities to reorganize secondary education on comprehensive lines, and though revoked in 1970 by the Conservative government with Circular 10/70, that was withdrawn and a new directive, (Circular 4/74) made clear the government intended to go ahead, to develop "a fully comprehensive system of secondary education and...[end] selection at 11+ or at any other stage" with the education secretary expecting LEAs and school governors 'to secure under his control and direction and the effective execution of this policy. (The relevant circulars are 10/65, 10/70 and 4/74 and published by the Department of Education and Science).

of a lottery. It depended on what initiatves were taken or what courses were introduced into the standard curriculum from the 1980s as successive governments sought to make good the gap in technical and vocational education through a variety of revamped qualifications, initiatives and programmes[49].

Following the Coalition education reforms (2010-15), a new system of vocational education is to be introduced. Vocational qualifications have been reviewed and their numbers cut. The revised lists include some qualifications for 14-16 year olds at levels 1 and 2[50]. These will include technical awards which are distinct from GCSEs but are supposed to be pitched at the same level of rigour and also fulfil entry requirements alongside GCSEs for post-16 academic, tehnical and applied study. Technical awards will be in a variety of subjects from agriculture, horticulture and animal care to travel and tourism for level 1 and 2 qualifications[51]. The main focus of the new system for FE will be for 16-19 years (see below).

Secondary Years: 16-19

For older post 16s, education and training has been provided by technical and further education colleges on a full and part time basis and for those taking day release courses from their jobs. Today there are around 280 FE colleges for 16-19 year olds which have continued to provide training and education for post 16 year olds including day release courses for those in work to take qualifications developed by the City and Guilds of London Institute (craft, construction, engineering and manufacturing), the Business & Technician Education Council (BTEC) and the Royal Society of Arts Examinations Board (RSA) for secretarial and office (later computer literacy and information technology) as well as those added under successive reforms.

Following the review and subsequent reforms, the number of qualifications has been streamlined. Three levels of revised qualifications have been authorized, the first 'technical award' is for 14-16 year olds, the second 'technical certificate' and third 'tech level' are for post-16s[52].

The big change however is that a new system of technical education is now proposed for 16-19 year olds, with a new technical option to be introduced to run in parallel with the academic or A level option.

For the technical option there will be two years of study post-16 leading to T levels for 15 routes or pathways, each intended to lead to skilled employment. These include such occupations as construction, agriculture, environmental and animal care, protective services, with each designed to prepare for a skilled occupation and each programme including a common core for all individuals on that course along with English, maths and digital skills. The idea is that significant technical knowledge and skills will be needed and employers' groups will be involved, helping for instance, to define content levels pitched to occupational standards. There will be a work placement for a minimum of 3 months. The courses will be FE based and college taught with a work placement or conducted through an apprenticeship and part time education with the first to be introduced from 2019. The aim is for the new T levels to lead to employment or to further higher level technical education after 18[53].

49 These have included a Technical and Vocational Education Initiative (TVEI 1983-1997) General National Vocational Qualifications (GNVQs 1992-7), New Deal programmes, vocational 'O' and 'A'levels, new schools such as City Technology Colleges (CTCs), specialist schools and academies.

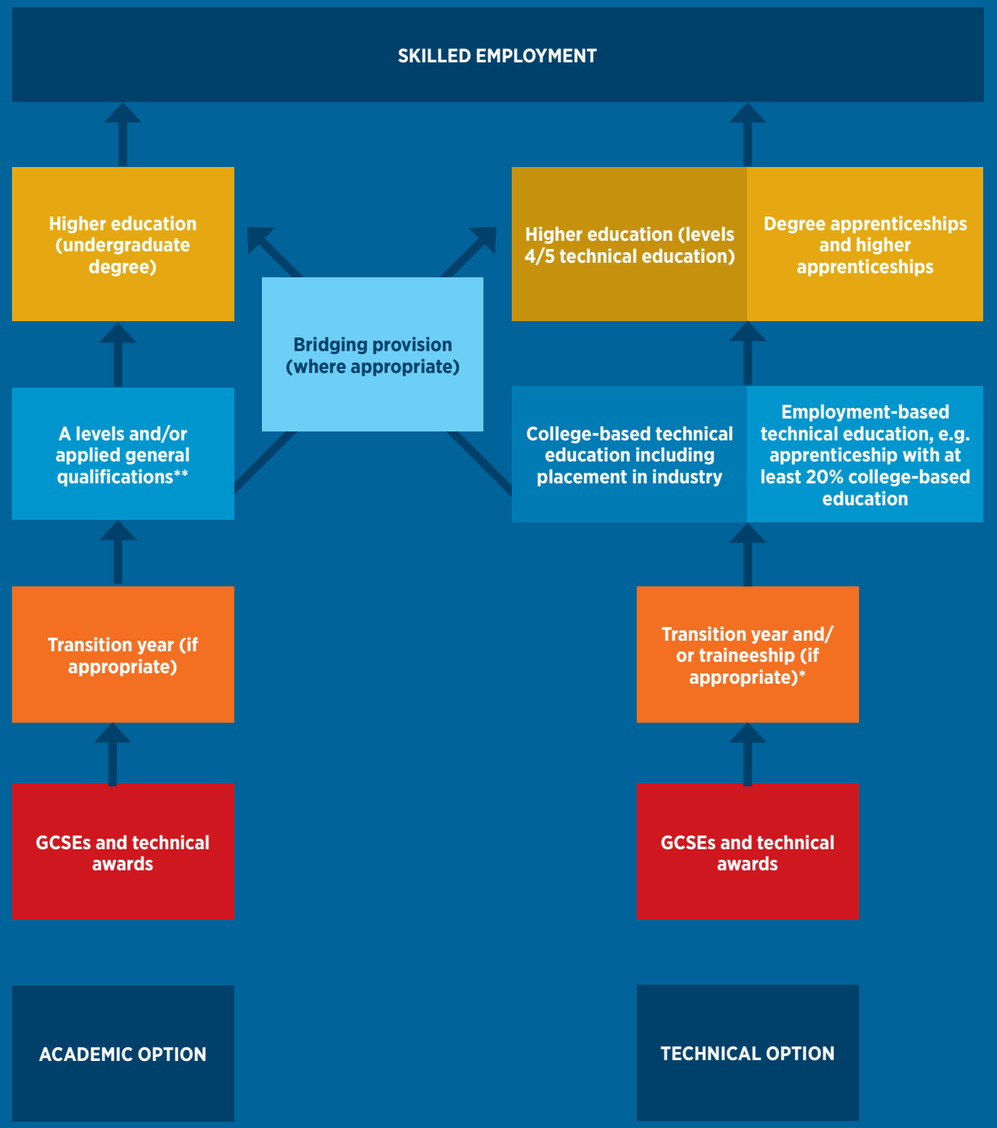
50 '2016 key stage 4 performance tables: inclusion of 14 to 16 non-GCSE qualifications', Department for Education, November 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/519937/2016_KS4_list.pdf

51 The DfE describes 'technical awards as high quality level 1 and 2 qualifications that provide 14 to 16 year olds with applied knowledge and practical skills.'). For the post 16s higher level qualifications will be offered. Up to three technical awards may be included as part of the group of subjects which can be offered in addition to the five academic subjects, English maths, 3 academic subjects and three 'open grou' subjects, each will count as equivalent to a GCSE. Ruled out are qualfications focussing on a particular occupation which could limit a 16 year old's progression.
(Technical and applied qualifications for 14 to 19 year olds, Key stage 4 and 16 to 18 performance tables from 2020: technical guidance for awarding organisations, DfE November 2017. Pp 11-22.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/661918/2020_Technical_Guidance.pdf)

52 Technical Awards, levels 1-2 for 14-16 year olds
https://www.gov.uk/government/publications/2019-performance-tables-technical-and-vocational-qualifications/2019-school-performance-tables-technical-and-applied-qualifications
Technical certificates are level 2 qualifications 'that provide post-16 students with the knowledge and skills they need for skilled employment or for further technical study.'https://www.gov.uk/government/publications/2019-performance-tables-technical-and-vocational-qualifications/technical-certificates
Tech levels are level 3 qualifications that provide post-16 students with the knowledge and skills they need for skilled employment or for further technical study.
https://www.gov.uk/government/publications/2019-performance-tables-technical-and-vocational-qualifications/tech-levels

53 For the initial plan see Post-16 Skills Plan, Presented to Parliament,by the Minister of State for Skills by Command of Her Majesty, July 2016 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/ file/536043/Post-16_Skills_Plan.pdf)

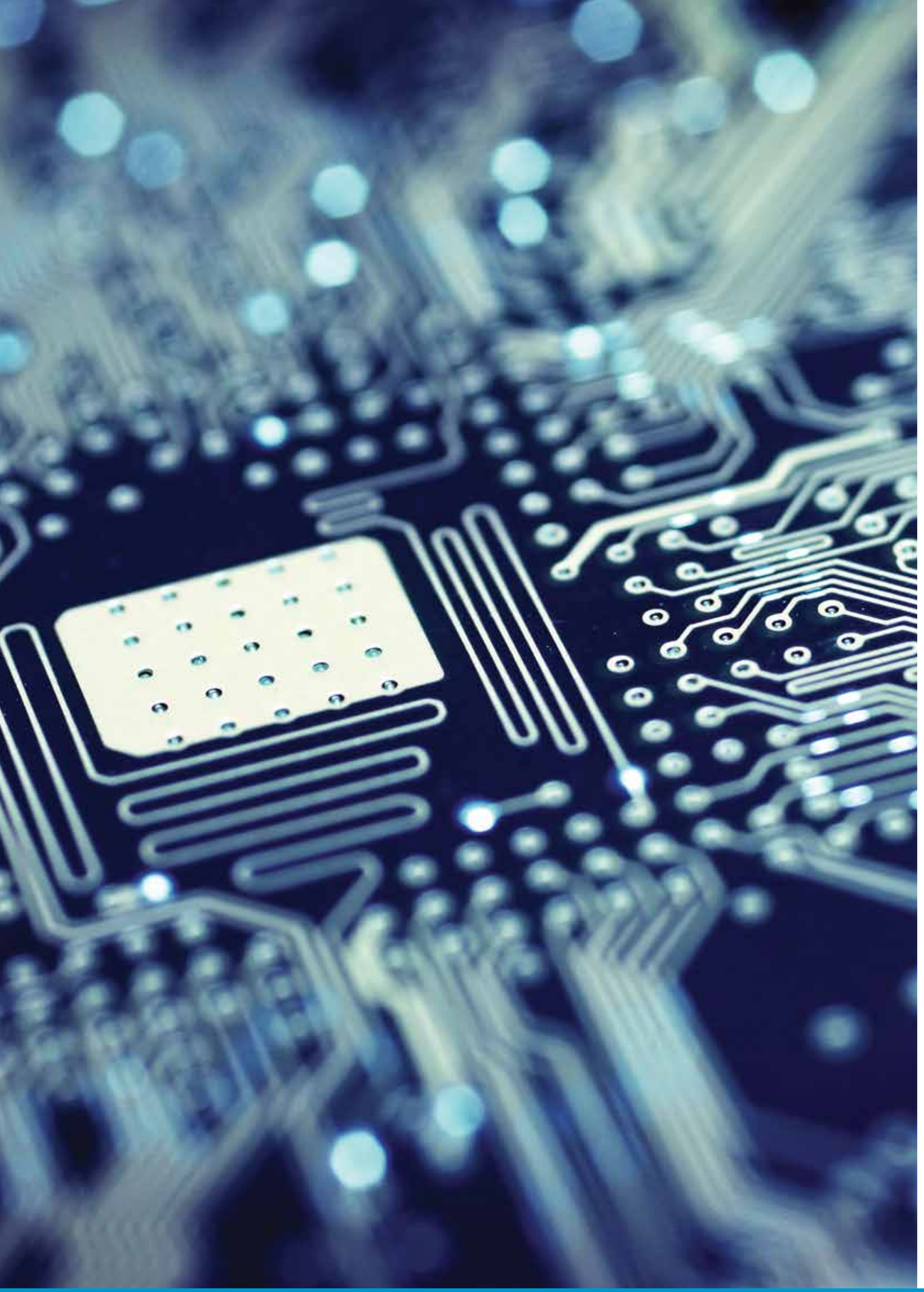
How the academic and technical options would work



*Where a student does both. The traineeship will follow the transition year. Students doing both the transition year and a traineeship may progress directly to employment.

**Some students will move directly from A levels and/or applied general qualifications to degree and higher apprenticeships.

Source: see footnote 53



ENGLAND – CONCLUDING REMARKS

The account emerging from these pages tells a story, often a negative one, of an education and training system very different to that in Germany or France, of a country that has lost its way in the education and training of school age pupils.

In the decades after World War 2 the opportunity to develop the system of vocational and technical education was missed. When the school leaving age was raised to 16 with the aim of extending the tripartite model and developing technical and vocational education, successive governments neglected to do so. That lapse was followed by the policy of moving to a comprehensive system in the 1960s and 1970s with further detrimental implications for vocational education before 16. Attempts to plug the gaps followed from the 1980s as different policies sought to graft a medley of qualifications and courses onto the system. Although for 16-19 year olds further education colleges have continued to provide courses, the FE system did not aspire to the standards established in Germany or to the range and diversity of French or German vocational and technical routes.

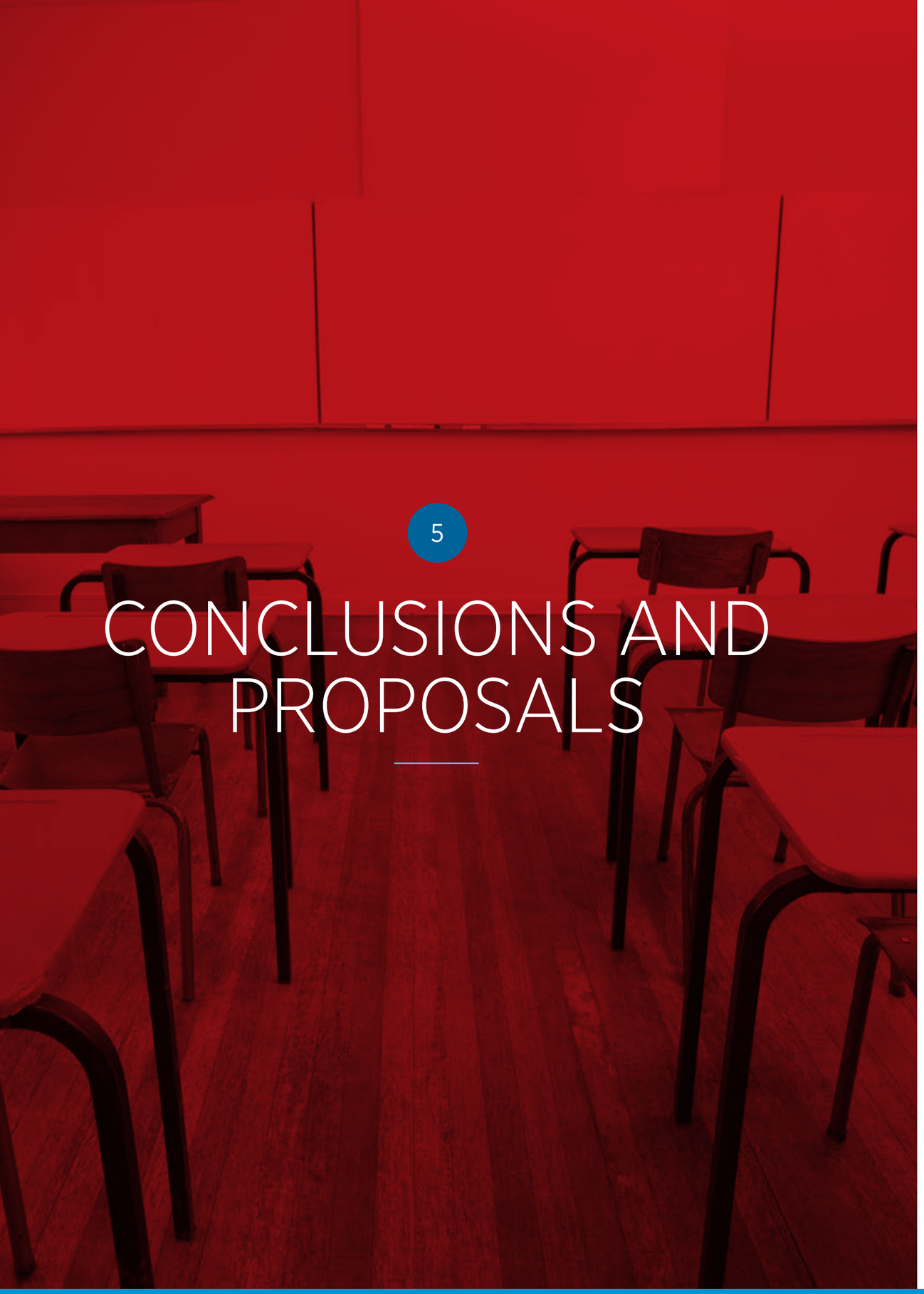
That failure was paralleled by the failure to foster academic and intellectual talent when selection was ended, and with it most grammar schools. Unlike Germany which continued to provide schools for the most able academically from age 11, or France which did so from 16, in England these pupils have had no particular opportunity to be stretched or excel within the maintained sector. The expectation remains that they receive an education similar to that of the whole ability range, in the same comprehensive schools, taking the same curriculum and the same system of examinations.

To both of these weaknesses can be added the more general failure to uphold standards in academic subjects to the benefit of all pupils. Instead, the tendency has been to pitch the uniform curriculum and qualifications system to a low common denominator in terms of academic content and breath.

The consequences have become increasingly clear since the 1980s as too many pupils emerge from the system poorly educated and ill-equipped for continued academic study or for moving to a job. To tackle the perceived problems, successive governments have introduced a number of policies to open up the system to new vocational qualifications and courses and to promote greater diversity of schools. But the fundamental problems of uniformly low officially set standards remained and in order to tackle some of these, fundamental reforms have been introduced since 2010 to transform the system of education and training, by providing it with a more academically focussed curriculum and a new system on the vocational and technical side.

If these reforms are to succeed, further changes may be needed and these will be discussed in the final chapter and the lessons from Germany and France considered. In particular it is clear that children of different abilities, aptitudes and talents must be taught the foundation subjects throughout the school years, pitched as necessary to the different levels; that a more particular debate must be had about developing distinct vocational and technical school before, as well as after 16; while a third debate must be opened on how best to promote the education of the academically most able given that for now it is likely that the comprehensive model will continue.

Above all, however, the focus must be on recruiting the most academically and vocationally gifted into the teaching profession. Unlike either continental neighbour, this country has failed to ensure that as a rule school teachers are academically competent let alone gifted in the subjects they teach, at primary or secondary school. The practice of 'training' generations of entrants via a B Ed degree with professional skills and often a modicum of ('relevant') subject knowledge, has compounded and contributed to the poor standards and gimmicks to which the system has been prey. Possible solutions will be discussed in the concluding section.



5

CONCLUSIONS AND PROPOSALS

For many decades successive governments in the UK have been concerned about educational standards as achievement and aspiration often lagged behind that of other higher performing countries. Pupils sometimes finished primary school without reaching the standard of literacy and numeracy needed for work at secondary school. The standards reached in public examinations at 16 or 19 failed to reassure universities or employers that many school leavers were adequately educated. Although successive governments focussed on a variety of policies from the 1980s to tackle the failings of the system by reforming the structure or content of schooling, it was not until the 2010 that fundamental reform to the curriculum and exams was introduced by the then Secretary of State, Michael Gove. These measures are now being put into effect and signal that English schools will be obliged to teach to higher academic standards, on a par with those expected on the continent and in the higher performing countries globally.

Vocational education and training has also been the subject of reform, following a series of proposals and reports by the distinguished academic, Professor Alison Wolf (Baroness Wolf of Dulwich) and the business leader, Lord Sainsbury[54]. The aim of such reform is twofold: to improve the quality of the vocational system and replace a chaotic system of courses and qualifications with fewer and better qualifications for pre- and post- 16 year olds, and to introduce a streamlined technological and vocational education system for 16-19 year olds to run parallel with 'A' levels and lead to a 'T level' vocational qualification. T levels will be offered in a number of subject areas, and business will play a signficant role in shaping the courses and in providing new apprenticeships.

Such changes appear to reflect the approach in Germany, where business and industry, through the chambers of commerce, play a leading part in shaping the dual system of vocational education and training and its qualifications, providing apprenticeships and sharing responsibility with the Federal Government.

This analysis suggests that there may be further lessons for this country from the German system and others from the French which would enable it to move rapidly to an effective and successful system. In particular:

- **France and Germany promote high standards of general education throughout school years for all pupils.**
  Although this country's reforms aim to ensure high standards of general education before 16, a rigorous system of general education must be enforced for those following the vocational route post-16. Germany promotes high standards through a selective system from 11-15/ 16 in which teaching is pitched to levels of ability. In France and Germany, for those who follow vocational education programmes, teaching continues in such subjects as language, mathematics, history/ geography/social sciences. General teaching is combined with the applied and theoretical content for the vocational course.

- **Dedicated courses offered in the lower secondary years to all pupils can introduce vocational and technological subjects as pupils explore their interests and abilities.**
  In Germany's selective system this is the rule. In France at lower secondary school such dedicated courses are in general offered with timetabled time.

- **Pupils are inspired and encouraged during school years to follow the technological pathway with the abler encouraged to follow through to tertiary education.**
  France includes obligatory technological teaching for all pupils before 16 and both it and Germany offer special courses during school years to equip able pupils for the technological pathway later on at universities or the grands écoles. With teachers who are academically and technologically qualified, much of the ground work can be covered at school, thus curbing the higher costs which would otherwise be incurred to cover the same work at tertiary stage.

54 Review of vocational education: the Wolf report. March 2011, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf
Report of the Independent Panel on Technical Education, April 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536046/Report_of_the_Independent_Panel_on_Technical_Education.pdf

- **Differentiation and selection after 16 allow for different standards in each of the academic, vocational and technological routes. It is reinforced by a variety of qualifications offered to stretch different ability levels to their full potential.**
  In both France and Germany the system after 16 is selective based on ability and aptitude**.** Both countries have a diverse qualifications system with a variety of school leaving qualifications, pitched at different academic and vocational levels for 18/19 year olds. In this way different aptitudes and abilities can more easily be stretched to their full potential as they continue education or specific training. The German system facilitates the preparation of all to take their place at a later stage in the world of work, with continuing education and training available especially for those who take a shorter training period.

- **During school years the most able pupils are encouraged to excel and reach their full potential.**
  In Germany and France high academic achievers are encouraged to excel at school age with specialist courses, programmes and teaching. In Germany there is a selective secondary school system from 11 – 18. In France, a number of lycées provide the specialist teaching for the Classes Préparatoires aux Grandes Écoles (CPGE), a two year qualification to prepare for the entrance exam to the grandes écoles. The standard is equivalent to the first two years in university.

- **The most successful businesses can be encouraged to collaborate with central government on shaping vocational education and training.**
  The German model suggests that the most successful businesses and industry invest and participate in the apprenticeship scheme, are heavily involved in the formation and play a major part through the chambers in shaping the curriculum and courses, the qualifications system and providing trainers and assessors alike.

- **High academic and vocational standards are the rule for teachers in the subjects they teach at school.**
  In France and Germany secondary age teachers are qualified to university degree level. German vocational education teachers are expected to have the vocational qualifications in the subject plus experience in teaching it at school. Those who also teach general subjects are expected to have the relevant academic qualification.

- **Differentiation combined with distinct and separate schools in the vocational education and training system promote the specialist pathways and serve to attract, build and develop the teaching teams in the different sectors.**
  France and Germany have different schools for different pathways post 16, with considerable differentiation between institutions, to allow for specialisation, ability and aptitutde. These systems are not uniform and the model and its ability to attract specialist teaching is reinforced by promoting distinct and separate schools.

Pisa Scores, 2012, 2015

	Science (2012)		Science (2015)		
	Mean score	Average 3 year trend	Mean score	Average 3 year trend	Ranking
OECD Average	**501**	0.5	**493**	-1	
Singapore	**551**	3.3	**556**	7	1
UK	**514**	-0.1	**509**	-1	15
Germany	**524**	1.4	**509**	-2	16
Ireland	**522**	2.3	**503**	0	19
France	**499**	0.6	**495**	0	27
Spain	**496**	1.3	**493**	2	30
Italy	**494**	3	**481**	2	34

	Mathematics (2012)		Mathematics (2015)		
	Mean score	Average 3 year trend	Mean score	Average 3 year trend	Ranking
OECD Average			**490**	-1	
Singapore	**573**	3.8	**564**	1	1
UK	**494**	-0.3	**492**	-1	27
Germany	**514**	1.4	**506**	2	16
Ireland	**501**	-0.6	**504**	0	17
France	**495**	0	**493**	-4	26
Spain	**496**	1.3	**486**	1	32
Italy	**494**	3	**490**	7	30

	Reading (2012)		Reading (2015)		
	Mean score	Average 3 year trend	Mean score	Average 3 year trend	Ranking
OECD Average	**496**	0.3	**493**	-1	
Singapore	**542**	5.4	**535**	5	1
UK	**499**	0.7	**498**	2	22
Germany	**524**	1.4	**509**	6	11
Ireland	**522**	2.3	**521**	3	5
France	**499**	0.6	**499**	2	20
Spain	**496**	1.3	**496**	7	25
Italy	**494**	3	**485**	0	34

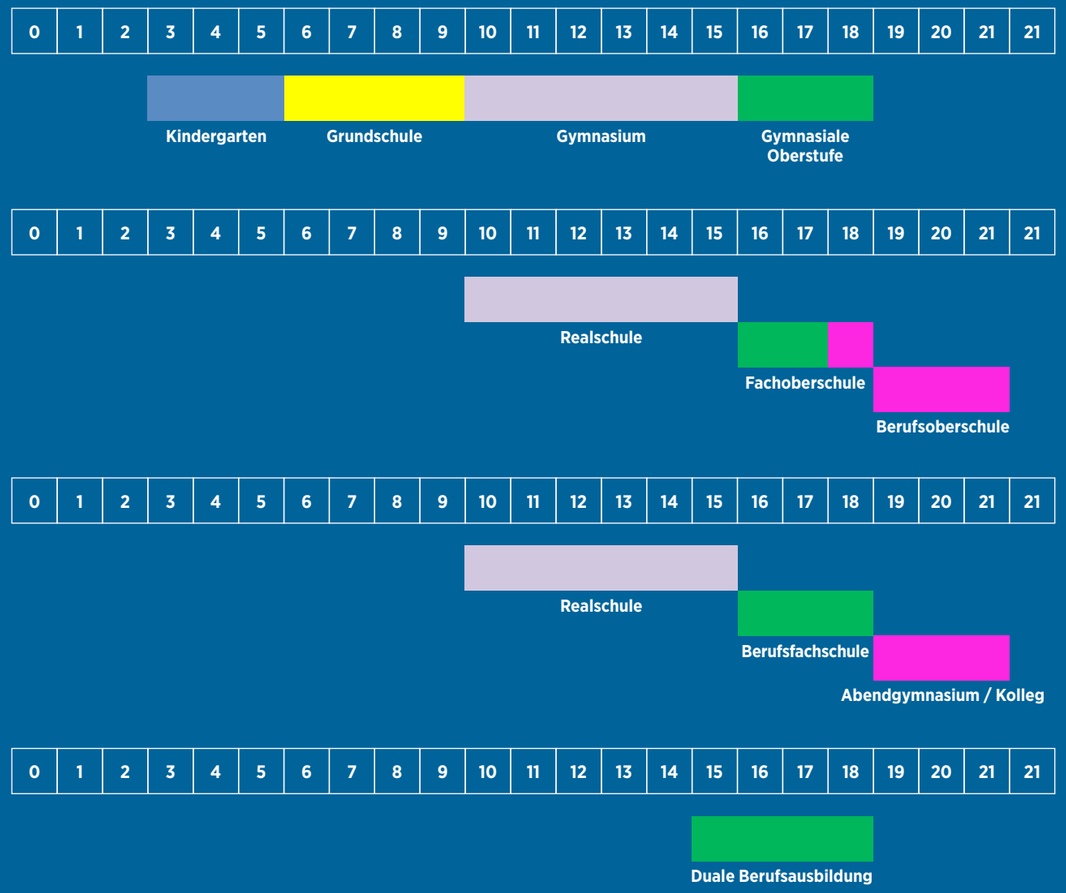
Science, Reading and Mathematics (2015)

Share of top performers in at least one subject (Level 5 or 6)	Share of low achievers in all three subjects (below Level 2)
39.10%	4.80%
16.90%	10.10%
19.20%	9.80%
15.50%	6.80%
18.40%	14.80%
10.90%	10.30%
13.50%	12.20%

Source: 'PISA 2015 results in focus', OECD, 2016 (https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf)

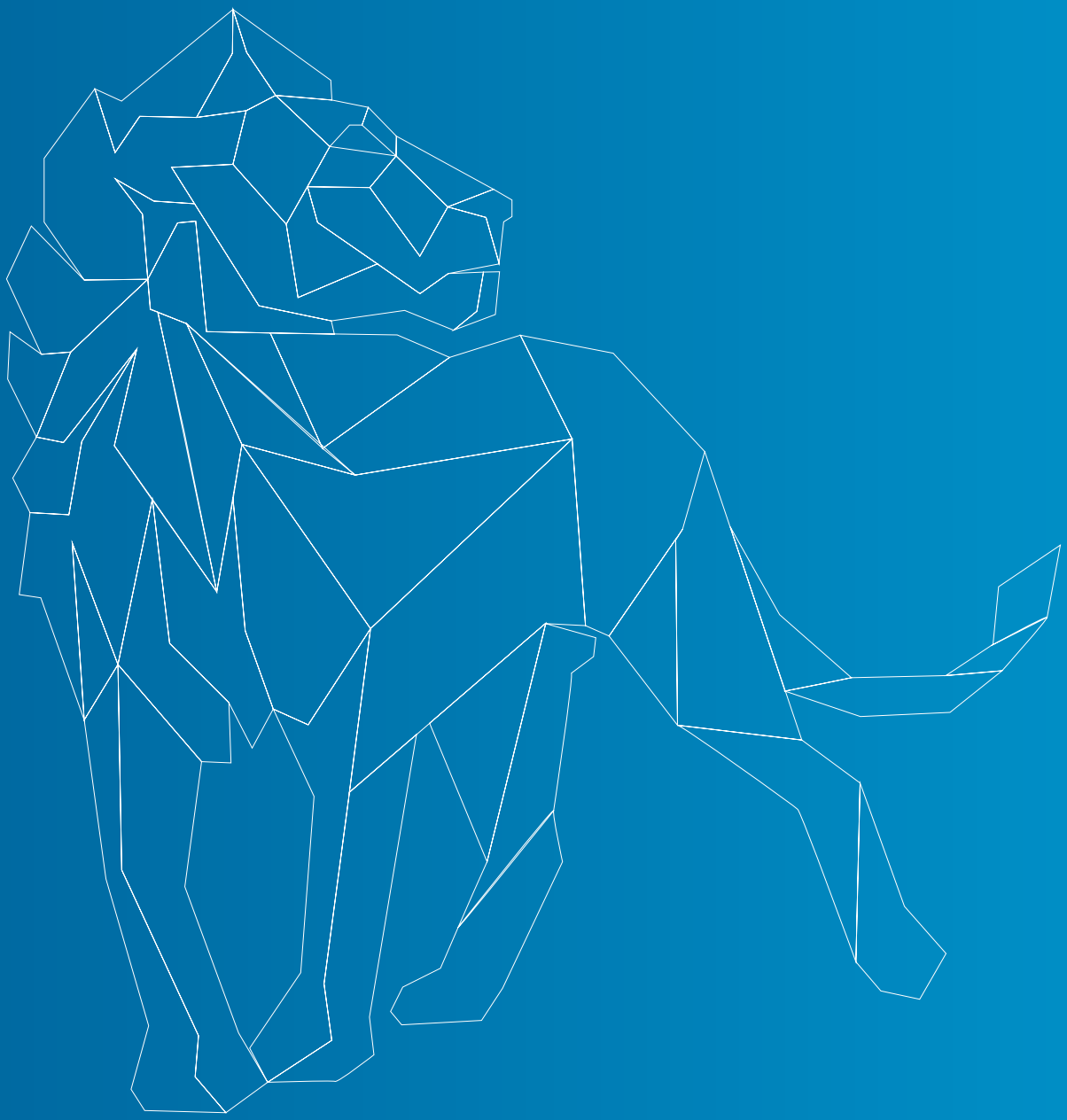
The German school system

Age range



Duration (years)

NOTES



www.europeanreform.org
Follow us @**europeanreform**