



# What is Project-Based Learning?

## Introduction: What is PBL?

Project-Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period "...to investigate and respond to an authentic, engaging, and complex question, problem, or challenge."<sup>1</sup> Practically "students work on a project over time – from a week up to a semester – that engages them in solving a real-world problem or answering a complex question. They demonstrate their knowledge and skills by developing a public

product or presentation for a real audience. As a result, students develop deep content knowledge as well as critical thinking, creativity, and communication skills in the context of doing an authentic, meaningful project. Project-Based Learning unleashes a contagious, creative energy among students and teachers." In the UK, XP School and School 21, whose curriculum is based on PBL, were judged Outstanding by Ofsted.<sup>2</sup>

<sup>1</sup> Source: Buck Institute for Education [http://www.bie.org/about/what\\_pbl](http://www.bie.org/about/what_pbl)

<sup>2</sup> School 21: <https://reports.ofsted.gov.uk/provider/28/138196>; XP School: <https://reports.ofsted.gov.uk/provider/23/140964>

# Why is PBL important?

Learning in the 21st century needs to prepare students with the skills employers need in a global economy; complex problem solving, critical thinking, creativity, collaboration and communication. The OECD states that Project Based Learning is a pedagogical and a curriculum approach which allows students to identify multiple solutions to complex problems by:

- Transferring key concepts or big ideas across different disciplines, which leads to deeper learning and more effective transfer of knowledge
- Identifying interconnections across concepts reflecting the complexities of the real world
- Connect different disciplines through thematic learning;
- Grouping subjects to acknowledge the importance of interdisciplinary knowledge; this also reduces curriculum overload

Different schools and organisations have taken and adapted elements of PBL to fit with their context. However, they are all clear about:

- Purpose
- Why PBL and how it fits into their overall ethos, values, curriculum content and assessment.

Expeditionary learning: all expeditions are mapped to 'standards' and scaffolded for KS3 and KS4 where a thematic approach is taken to learning. XP School in the UK takes this approach, with each expedition being made up of three different case studies:

XP School Doncaster <https://xptrust.org/our-vision/>



Project-Based Learning in its purest form follows students interest and projects are co-created with learners with real-world problems. Mapped at a project level to subject and curriculum standards. High tech High<sup>5</sup> in the USA co-creates their projects with their students. In the UK School 21 also follows the key design elements of PBL School 21 <https://www.school21.org.uk/design-principles>

It is likely you already use different aspects of PBL in your teaching. For example, you may already focus on authenticity, addressing real-world problems and questions by working with and co-creating projects with experts and the community, or use thematic approaches to provide cross-disciplinary learning opportunities. PBL can be called different things in different schools, for example, 'teaching through the lens' or 'applied learning'. PBL can be used in single subjects, or as wider cross-disciplinary approaches. However, PBL is not a quick-fix solution, but needs to be planned for, and embedded into existing school curriculum and assessment systems. PBL with its focus on student-led learning does not always sit comfortably with highly regimented approaches to learning<sup>6</sup>.

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<sup>3</sup> CBI.2019. Education and Learning for the modern world <https://www.cbi.org.uk/articles/education-and-learning-for-the-modern-world/>

<sup>4</sup> OECD.2019. Future of Education and Skills 2030 Conceptual Learning Framework Knowledge for 2030

<sup>5</sup> <https://www.hightechhigh.org/>

<sup>6</sup> Leat, D and Lofthouse, RM and Thomas, U (2015) Implementing Enquiry and Project-based Learning - Revolution or Evolution? Education Today, 65 (2), pp. 12-17. ISSN 1832-4916



<b>Additional resources and sources of best practice: What is PBL?</b>	
Expeditionary Learning	<a href="https://eleducation.org/resources/differentiated-projects-and-products-in-el-schools">https://eleducation.org/resources/differentiated-projects-and-products-in-el-schools</a>
PBL Works / Buck Institute	<a href="https://www.pblworks.org/what-is-pbl">https://www.pblworks.org/what-is-pbl</a>
XP School Doncaster	<a href="https://xptrust.org/our-curriculum/">https://xptrust.org/our-curriculum/</a> Ofsted Outstanding
School 21 London	<a href="https://www.school21.org.uk/beautiful-work">https://www.school21.org.uk/beautiful-work</a> Ofsted Outstanding
Magnifying Learning	<a href="https://www.magnifylearningin.org/what-is-project-based-learning">https://www.magnifylearningin.org/what-is-project-based-learning</a>
High Tech High USA	<a href="https://gse.hightechhigh.org/design/">https://gse.hightechhigh.org/design/</a>
OECD	Knowledge for 2030 <a href="https://www.oecd.org/education/2030-project/teaching-and-learning/learning/knowledge/Knowledge_for_2030_concept_note.pdf">https://www.oecd.org/education/2030-project/teaching-and-learning/learning/knowledge/Knowledge_for_2030_concept_note.pdf</a>
Edge Foundation	PBL Toolkit
Innovation Unit	<a href="https://www.innovationunit.org/publications/work-that-matters-the-teachers-guide-to-project-based-learning/">https://www.innovationunit.org/publications/work-that-matters-the-teachers-guide-to-project-based-learning/</a>

# The 8 key design elements of Project-Based Learning

PBL has common elements which support teacher planning for deeper learning, student engagement and complex problem-solving.<sup>7</sup> This flow diagram shows the important aspects of PBL for the UK context which draw from both models.

### Step 1: What is PBL:

An overview of PBL including the UK and international context of PBL. A project is not just the end product, but consists of deep learning experiences connected by theme<sup>8</sup>.

### Step 2: Project design and assessment:

Project design links to curriculum standards and the school or college assessment system. There are a range of resources to support your planning including sample projects, UK curriculum exemplars, planning proformas, and guides to assessment strategies in PBL.

### Step 3: Driving question<sup>9</sup>:

This is the core question that the project is based on, Driving questions are provocative, open-ended and challenging allowing sustained inquiry. They arise from real-world dilemmas that students find interesting, linked to curricular standards and school frameworks.

### Step 4: Community, employers and authenticity:

Project design plans for students to connect to their community and utilise employers as experts to support product design processes and high-quality authentic products. There are a range of resources to support teachers to plan this.

### Step 5: Entry event:

this event immerses students in the project, creates wonder and excitement, and ensures equity of project experience for all young people

### Step 6: PBL strategies:

Protocols, Rubrics: PBL uses specific strategies to support student learning. These are rubrics, protocols, and strategies to support questioning, oracy and skills development in PBL

### Step 7: Beautiful work:

Beautiful work is created through complex projects which develop craftsmanship and authentic end products. Critique, redrafting, and reflection is developed via rubrics which support student-led learning and curriculum standards

### Step 8 End products:

Products are presented as a community celebration of learning, which provides an authentic audience, assessment opportunities and expert critique.

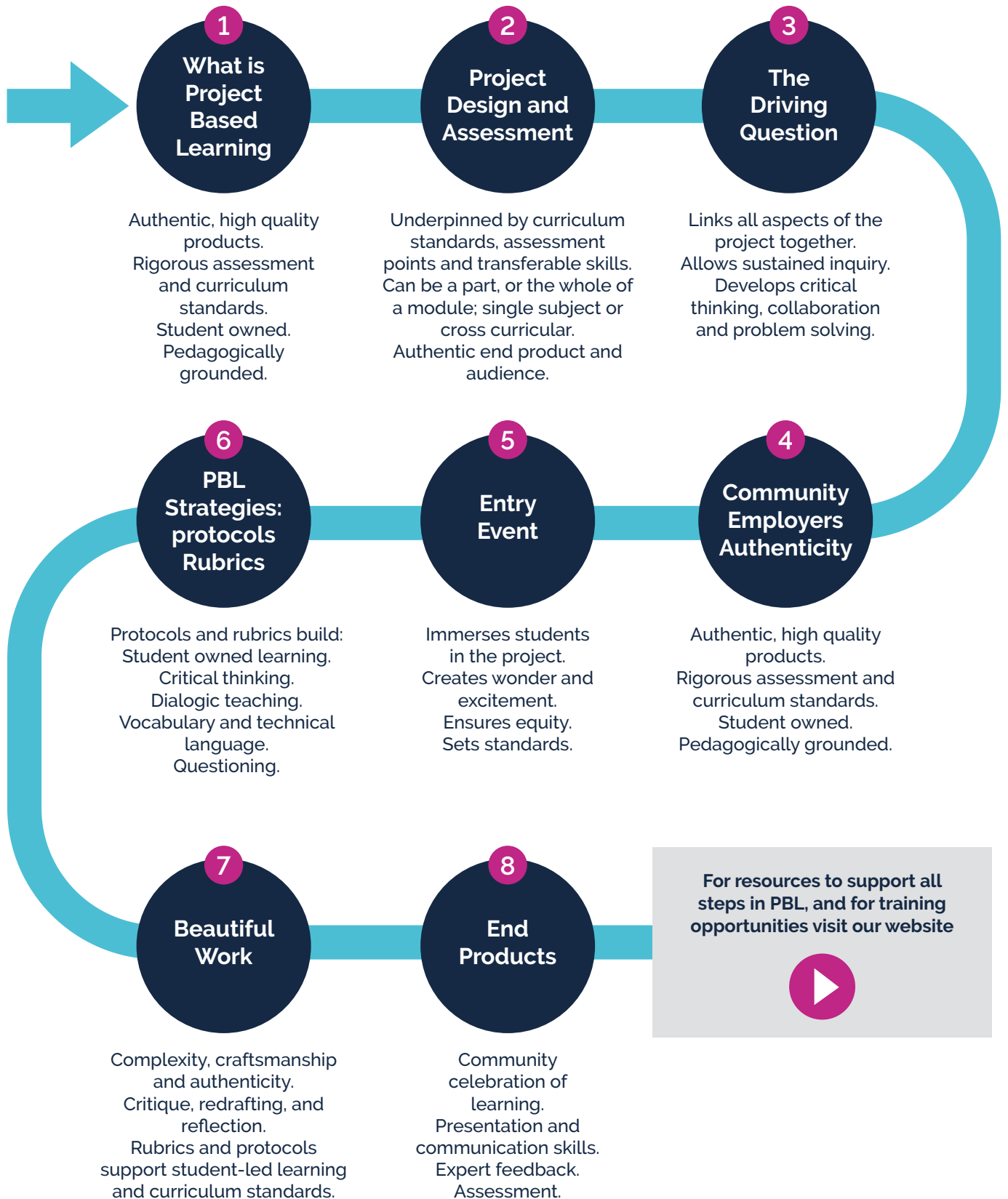
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<sup>7</sup> Edge PBL Toolkit

<sup>8</sup> <https://elearning.org/resources/differentiated-projects-and-products-in-el-schools>

<sup>9</sup> <https://www.magnifylearningin.org/driving-questions>

# Steps in Project Based Learning



# What PBL is NOT

## There are many common misconceptions of PBL

- **'Does PBL need to be a whole-school approach?'** **No:** PBL can be delivered within a standalone subject, part of a teaching sequence, collaboratively across subjects or as a wider school approach. The pedagogy of PBL will be familiar to teachers as just 'good teaching' strategies.
- **'Is learning is unstructured?'** **No:** Project design protocols, week by week session planning against curriculum standards and skills, and the use of rubrics ensure clear learning outcomes and rigorous assessment across the project.
- **'Students just do what they want around a general topic or theme?'** **No:** Every project has clear learning steps and a high-quality end product. Age expected rubrics and protocols support dialogic teaching which support and focus student-led learning in subject content and skills.
- **'Are students left to their own devices?'** **No:** PBL sessions are planned with the same detail around expectations of learning time as any other subject.

Independent reflection, critique, redrafting, teamwork and collaboration opportunities are modelled and explicitly planned in PBL.

- **'There is no 'input' from the teacher until the end or 'formal' learning/input or teaching?'** **No:** PBL is underpinned by detailed planning, dialogic teaching approaches, formative assessment, curriculum standards and learning expectations. Sessions can be part of or the whole of teaching time.
- **'Students will be assessed as a group and as such individuals can get away with doing very little and leave it to the rest of the group?'** **No:** PBL involves individual work as well as group projects. Use of protocols supports teachers to engage all learners. Co-produced rubrics explicitly break skills steps down for students.
- **'There are no checks and balances through the project?'** **No:** PBL has the same curriculum standards, subject way-points and end-point progress expectations as any other subject area in your school. Assessment should link directly to your school assessment system

# Developing Project-Based Learning in your teaching:

It is useful to consider your starting point and level of experience from a personal development perspective. This teachers' rubric will help you do this. As students get better and more experienced at PBL the more they undertake projects, this also applies to teachers whose experience and effectiveness also increase the more opportunities they have to develop PBL for their students. This is something which often takes time, and it is useful to acknowledge that teachers like students also benefit from reflection and critiquing as they grow in terms of their PBL practice.

PROJECT BASED TEACHING RUBRIC			
Project Based Teaching Practice	Beginning PBL Teacher	Developing PBL Teacher	Gold Standard PBL Teacher
<b>Design &amp; Plan</b>	<ul style="list-style-type: none"> <li>• Project includes some Essential Project Design Elements, but not at the highest level of the Project Design Rubric.</li> <li>• Plans for scaffolding and assessing student learning lack some detail; project calendar needs more detail, or is not followed.</li> <li>• Some resources for the project have not been anticipated or arranged in advance.</li> </ul>	<ul style="list-style-type: none"> <li>• Project includes all Essential Project Design Elements, but some are not at the highest level of the Project Design Rubric.</li> <li>• Plans for scaffolding and assessing student learning lack some detail; project calendar allows too much or too little time, or is followed too rigidly to respond to student needs.</li> <li>• Most resources for the project have been anticipated and arranged in advance.</li> </ul>	<ul style="list-style-type: none"> <li>• Project includes all Essential Project Design Elements, as described on the Project Design Rubric.</li> <li>• Plans are detailed and include scaffolding and assessing student learning and a project calendar, which remains flexible to meet student needs.</li> <li>• Resources for the project have been anticipated to the fullest extent possible and arranged well in advance.</li> </ul>
<b>Align to Standards</b>	<ul style="list-style-type: none"> <li>• Criteria for products are given but are not specifically derived from standards.</li> <li>• Scaffolding of student learning, critique and revision protocols, assessments and rubrics do not refer to or support student achievement of specific standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Criteria for products are not specified clearly enough to provide evidence that students have met all targeted standards.</li> <li>• Scaffolding of student learning, critique and revision protocols, assessments and rubrics do not always refer to or support student achievement of specific standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Criteria for products are clearly and specifically derived from standards and allows demonstration of mastery.</li> <li>• Scaffolding of student learning, critique and revision protocols, assessments and rubrics consistently refer to and support student achievement of specific standards.</li> </ul>
<b>Build the Culture</b>	<ul style="list-style-type: none"> <li>• Norms are created to guide project work, but they may still feel like 'rules' imposed and monitored by the teacher.</li> <li>• Students are asked for their ideas and given some choice to make, but opportunities for student voice and choice are infrequent or are only related to minor matters.</li> <li>• Students occasionally work independently, but often look to the teacher for guidance.</li> <li>• Student teams are often unproductive or require frequent intervention by the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Norms to guide the classroom are co-created with students, and students are beginning to internalize these norms.</li> <li>• Student voice and choice is encouraged through intentionally designed opportunities, e.g. when choosing teams, finding resources, using critique protocols, or creating products.</li> <li>• Students work independently to some extent, but look to the teacher for direction more often than necessary.</li> <li>• Student teams are generally productive and are learning what it means to move from cooperation to effective collaboration; the teacher occasionally has to intervene or manage their work.</li> </ul>	<ul style="list-style-type: none"> <li>• Norms to guide the classroom are co-created with and self-monitored by students.</li> <li>• Student voice and choice is regularly leveraged and ongoing, including identification of real-world issues and problems students want to address in projects.</li> <li>• Students usually know what they need to do with minimal direction from the teacher.</li> <li>• Students work collaboratively in healthy, high-functioning teams, much like an authentic work environment; the teacher rarely needs to be involved in managing teams.</li> </ul>

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PBLWorks.org

## Project-Based Teaching Rubric

See the full rubric at [http://www.bie.org/object/document/project\\_based\\_teaching\\_rubric](http://www.bie.org/object/document/project_based_teaching_rubric)

# Additional resources to support teaching

## Additional resources to support teaching

**International approaches:** these are often somewhere between the two models of expeditions/thematic learning and real-world learning single project approaches, but provide useful resources.

### The 7 key elements of PBL as identified by PBL Works

#### PBL Works and Buck Institute

One of the key leaders and exponents of PBL is the Buck Institute for Education [www.bie.org](http://www.bie.org) who are based in the USA. They have identified 7 key elements which make up their 'Gold Standard' PBL. With the PBL being underpinned by 'standards' i.e. the key knowledge, understanding and success skills that students cover in the curriculum.

1. Challenging Problem or question – the 'Driving Question' and sub-questions
2. Sustained inquiry
3. Authenticity
4. Student voice and choice
5. Reflection
6. Critique and revision
7. Public product – 'exhibition' 'expedition'

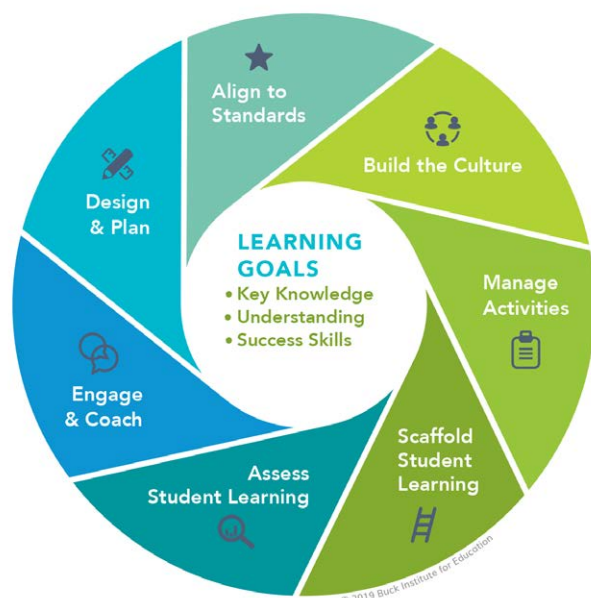
### Gold Standard PBL

#### Seven Essential Project Design Elements



### Gold Standard PBL

#### Seven Project Based Teaching Practices



### Expeditionary Learning

<https://eeducation.org/>

In 1991 EL Education was born out of a collaboration between The Harvard Graduate School of Education and Outward Bound USA.

"When students have completed their academic career and entered adult life, they'll be judged not by performance on basic skills tests – but rather, by the quality of their work and the quality of their character." Ron Berger

This premise serves as the foundation for EL Education's overarching vision of increasing student engagement and elevating and expanding student achievement.



### Additional resources and links

- CBI.2019 . Education and Learning for the modern world <https://www.cbi.org.uk/articles/education-and-learning-for-the-modern-world/>
- X-P School Doncaster <http://www.xpschool.org/our-expeditions/>
- School 21 – London curriculum <https://www.school21.org.uk/sec-curriculum> beautiful work <https://www.school21.org.uk/sec-beautiful-work>
- Buck Institute for Education [www.bie.org/project\\_search](http://www.bie.org/project_search)
- PBLU <http://pblu.org/>
- EL Education Models of Excellence <http://models.of.excellence.education.org/projects>
- Leat, D and Lofthouse, RM and Thomas, U (2015) Implementing Enquiry and Project-based Learning - Revolution or Evolution? Education Today, 65 (2). pp. 12-17. ISSN 1832-4916 Envision Schools Project Exchange [www.envisionprojects.org/](http://www.envisionprojects.org/)
- High Tech High [www.hightechhigh.org/student-work/student-projects/](http://www.hightechhigh.org/student-work/student-projects/)
- EduCurious <http://educurious.org/solutions/project-based-courses/>
- West Virginia Dept. of Education <http://wveis.k12.wv.us/teach21/public/project/>
- iEARN (International Education and Research Network) <https://iearn.org/cc/search/groups>
- Google - 24 assessments that don't suck
- Boot camp Bootleg – D School Stanford – walks students through design process how to? <https://dschool.stanford.edu/resources/design-thinking-bootleg>



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