

3. Driving or Guiding Question

The aim of this PowerPoint is to introduce you to the key elements of how you set the project up through creating a meaningful Driving or Guiding Question which informs and shapes the project in PBL and EL.

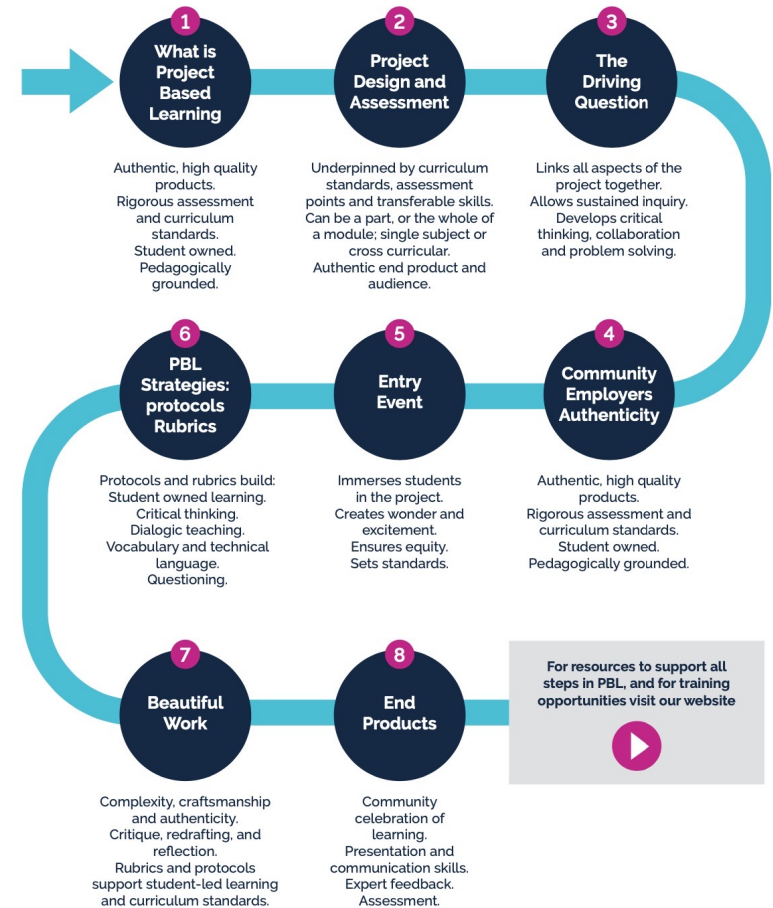
As you follow the flow of the PowerPoint please do also consider and explore the other associated resources which are highlighted and captured.

The PowerPoint gives you an overview and is an introduction. Please do use this in conjunction with the associated documents and PDFs which you can download and use to support your individual learning journey.

Step 3

The Driving Question

Steps in Project Based Learning





“

Questions are the engineers
of intellect...

The cerebral machines
which convert to motion,
and curiosity to controlled
inquiry.

David Hackett Fischer

Driving or guiding question to frame the project - pg.11-15 PBL Toolkit

What does this mean in relation to the project?

- Open ended driving question is at the centre of PBL – this drives the project and allows sustained inquiry
- Below the driving question it is helpful to devise sub-questions to scaffold the project for students
- Is the driving question engaging for students?
- Is the question aligned with the desired learning outcomes?

Different types of driving question

- A philosophical or debatable Issue or an intriguing topic
- Specifying a product, task or problem to be solved
- Adding a real-world role for students

The driving question

frames the project
and supports
sustained inquiry

PBL Toolkit pg. 11 - 15

Step 2 – the driving question

The importance of the driving question⁵

The driving question is the overarching question which students will address and answer by taking part in and undertaking the project. The framing and phrasing of the driving question is an important element of the project. The question needs to be well thought out and considered as it forms the basis of the project. Devising good driving questions takes time and considerable thought. The question should inspire and stimulate students' interest in the project.

As such it should:

1. Be a question that people ask in the 'real world'
2. Be a question that has no easy answer, and stretches students' intellectual muscles
3. Be a question that ignites students' imagination⁶

Sub-questions can also be devised to sit below the driving question. These are helpful for scaffolding and framing the driving question and project. When devising the question(s) it is important not to lose sight of the 'standards' i.e. the curriculum the project is aiming to cover.

An effective driving question meets the following criteria:⁷

- **Engaging for student**
 - It interests students in the project and is appropriate for the intended age, demographic background, community
 - Students can understand the question
 - It actively guides students through the project; it is not just a title or theme from the unit
 - It uses words "I" "we" or "us" not "you" or "students"
 - It provokes students to ask further questions, beginning the inquiry process
 - It might have a local context and/or a call to take action, making it even more engaging – focusing on community issues and needs, or topics relevant to students' lives

➤ Open-ended

- It has several possible 'right answers'
- The answer will be unique – it is not 'Google-able' by students
- The answer is complex and leads to an in-depth inquiry
- It may be a 'yes' or 'no' question, but if so, the answer must require a detailed explanation or justification

➤ Aligned with learning goals and outcomes

- Students will need to learn important content and skills in order to create project products that answer the driving question
- Ensure the question is not too big, requiring more knowledge than can be learned in a reasonable amount of time
- It does not necessarily state the learning goals explicitly – they can be specified later, when telling students more details about the project and the products created

Different types of driving questions

- A philosophical or debatable issue or an intriguing topic
- Specifying a product, task or problem to be solved
- Adding a real-world role for students



⁵ Explore this further at www.bie.org/object/document/driving_question_rubric

⁶ *Work that matters* – the teacher's guide to project-based learning, published by Paul Hamlyn Foundation 2012, page 38

⁷ *PBL 101 Workbook*, Buck Institute for Education, page 20

The driving question

Possible starter to a driving question...

- How?
- What?
- Who?
- Why?
- Does?
- Can?
- Is?

Make sure the answer is not 'googleable'

Does it support sustained inquiry?

Will students understand it?

Will it grab students interest?

Using Open and Guiding Questions

Questions and Project-Based Learning (PBL)

PBL is driven by questions. In PBL students apply their knowledge and understanding, analyse ideas, evaluate their processes, and create solutions and content. These processes require higher-order thinking skills. Research evidence suggests that pupils' levels of achievement can be increased by regular access to higher-order thinking which can be developed through effective use of open and closed questions.

What is a closed question?

A **closed or direct question** has a 'right' answer. It can be answered by a single word or short phrase or can be answered 'yes' or 'no'. The questioner is in control. Closed questions are useful for the recall of facts, checking or consolidating subject knowledge including vocabulary choices, process steps and to develop technical language.

Examples: *Who discovered penicillin? When was the battle of Flodden? What are the characteristics of living things?*

Closed questions can invite a game of 'guess what the teacher is thinking'. Wrong responses by students risk humiliation in a public arena. Closed questions can create 'performance anxiety' which reduces the willingness of some pupils to contribute ideas.

What is an open question?

An **open question** requires deeper thinking through the connecting of ideas and knowledge to answer it. Open questions ask what, if, how, why, can you explain? They have more than one answer and typically promote higher-order thinking skills of applying, analysing, evaluating, and creating. They encourage prior knowledge and skills to be applied

to current scenarios or problems, allowing students to situate knowledge in their wider subject knowledge and understanding. Open questions allow teachers to assess learners' ability to apply acquired knowledge and generalise it to new contexts. Students control the conversation.

Examples: *What do you think will happen next? How might global warming affect polar bears? Why might some birds mate for life? What are the pros and cons of building on the green belt?*

Open questions can invite lengthy answers with misconceptions.

Guiding questions

Guiding questions are open questions which scaffold the learning so knowledge is built incrementally, and higher-order thinking promoted. It can be useful to plan these based on the central question a session will answer, together with the sub-questions that build knowledge for that session. For example, in planning a campaign for a community response to climate change, scaffold students thinking with:

- What specific small actions could we take to change the world?
- How could this one specific action begin to create change?
- What could we do to begin making this one change?
- How would we know our efforts to change were becoming effective?
- What would make this one change even more powerful?

Sources: West Lothian Questioning; Project-Based Learning Toolkit
Edge Future Learning 2019; Cfsted Research for EIF Framework 2019

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Driving Question



Closed Questions

- Has a 'right' answer
- Fact recall / specific subject knowledge
- *E.g.: Who discovered penicillin?*

Open Questions

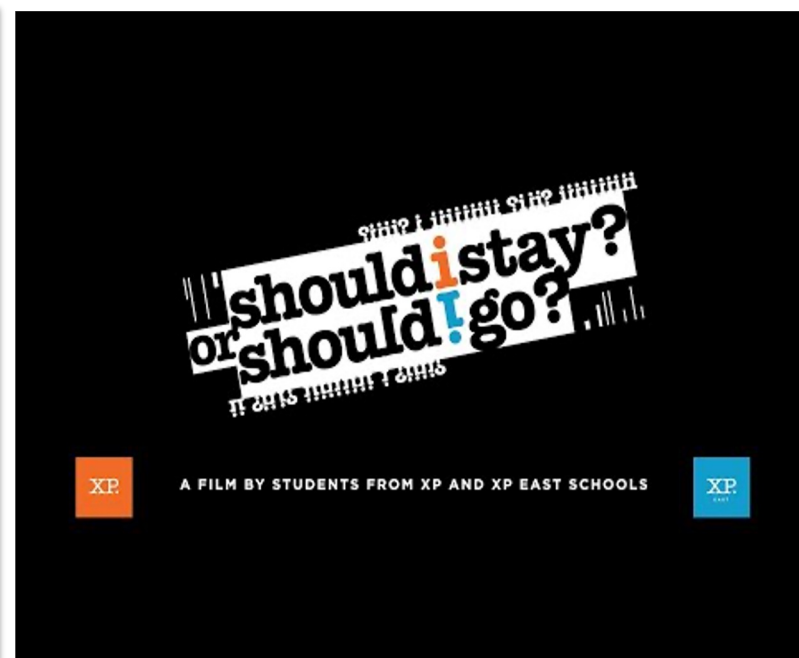
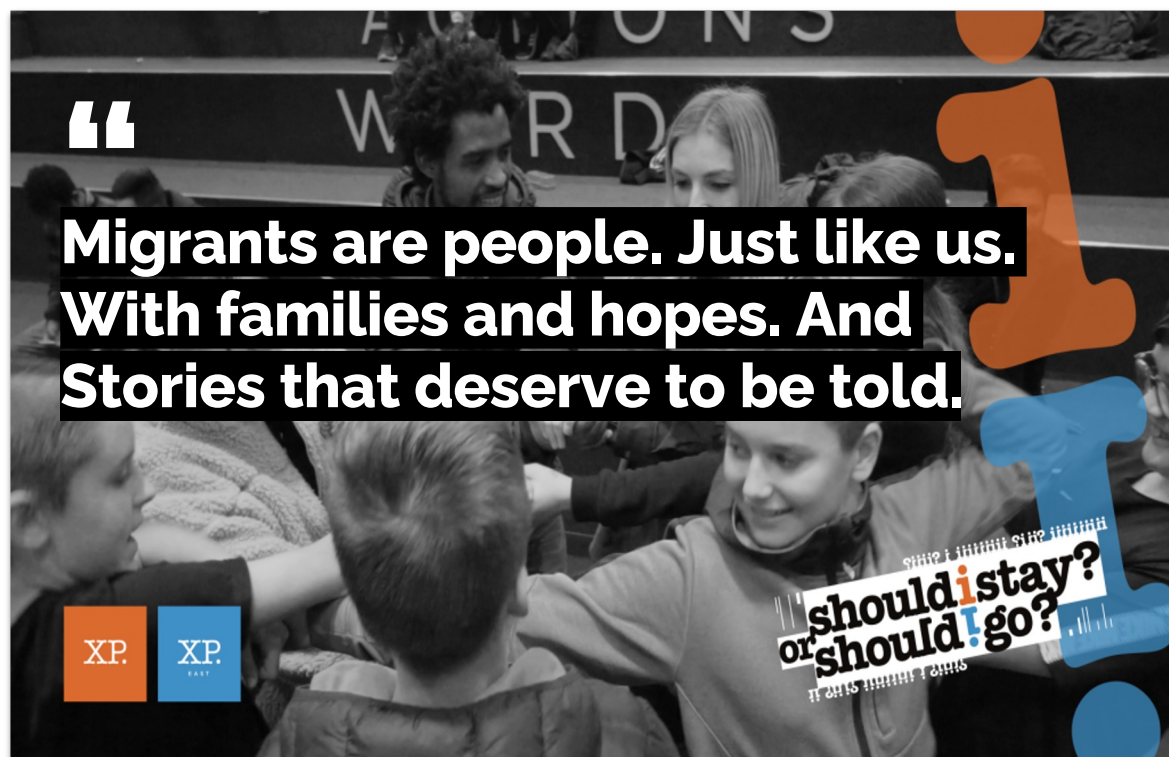
- No single 'right' answer
- A question people would ask in the 'real world'
- Deeper thinking / connecting ideas and applying knowledge
- Why | What if | How | Why do you think...?
- *E.g.: How does/will climate change affect our community?*

Driving Question

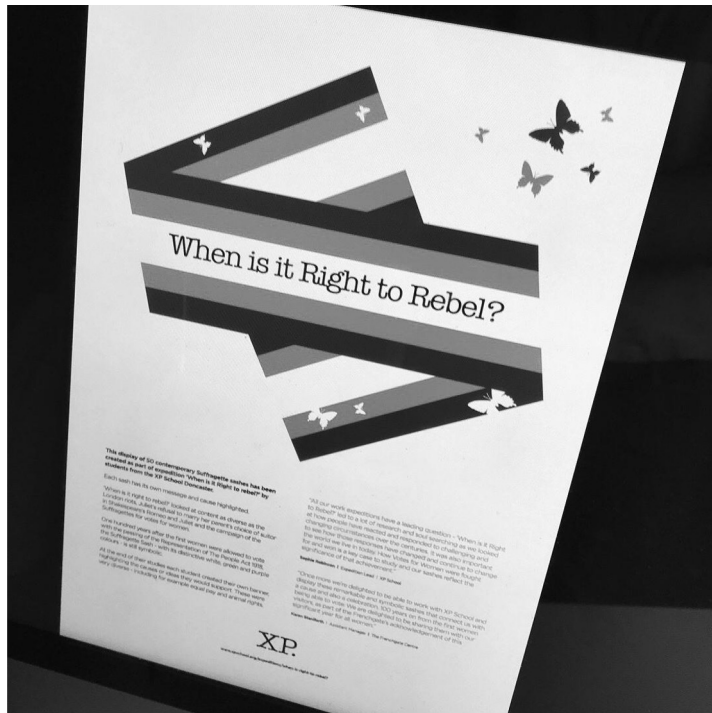
- **Specific and focused**
- **Affects people in your school & community**
- **Easy to understand / explain**
- **Important to other young people**
- **Could use further research**
- **Has realistic or possible solutions**
- **The answer is not 'googleable'**

Driving Question:

Why should we care about migration?



Driving Question: *When is it right to rebel?*



Driving Question:

How can maths help Stratford decide if three new concrete factories are too dirty?



Refer to page 8 and 9 of the PBL Toolkit to help you generate some project ideas from this your Driving Question can be created

Stage 1

Step 1 – generating project ideas

The starting point for PBL is to generate an idea which will give students an opportunity to undertake a sustained inquiry. Whilst at the same time ensuring the project delivers the curriculum area(s) or 'standards' which students need to learn, developing their knowledge, skills and understanding.

When deciding on a potential project idea you need to consider:

- Is it academically rigorous? Can students pose questions, gather and interpret data, develop and evaluate solutions or build evidence for answers, and ask further questions?
- Does the inquiry have the potential to be sustained over time? How long do you envisage the project lasting?

In developing your project idea it is often helpful to begin with the end in mind. Be clear about what you want your students to learn or do and the skills you wish them to acquire through the project, and do not lose sight of this in your planning.

Common types of project

- **Addressing a real-world problem** e.g. climate change
- **Meeting a design challenge** e.g. create a physical or digital artefact, a piece of writing, multimedia or work of art; develop a plan, produce an event; or provide a service
- **Exploring an abstract question** e.g. when is violence justified?
- **Conducting an investigation** e.g. a historical event or natural phenomenon
- **Taking a position on an issue** e.g. a present day or historical controversy

Sources of inspiration for PBL projects

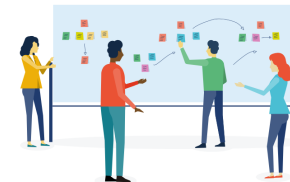
- **Community** – what are business needs in the community? Can they share a problem, issue or perspective?
- **Current events** – real world
- **The curriculum or 'content standards'** – what are you looking to teach? What skills knowledge and understanding do students need to acquire?

You may wish to utilise or adapt a project which has been delivered before or gain some inspiration. The following links may help:

Sources of information and inspiration:

- **XP School, Doncaster**
www.xpschool.org/our-expeditions/
- **School 21, London**
www.school21.org.uk/sec-curriculum
www.school21.org.uk/sec-beautiful-work
- **Buck Institute for Education**
www.bie.org/project_search
- **PBLU**
<http://pblu.org/>
- **Envision Schools Project Exchange**
www.envisionprojects.org/
- **High Tech High**
www.hightechhigh.org/student-work/student-projects/
- **IEARN (International Education and Research Network)**
<https://learn.org/cc/search/groups>
- **Expeditionary Learning**
<https://modelsforexcellence.education.org/projects>

If you are new to PBL and starting from scratch, firstly reflect on your current practice and consider the areas of the curriculum or 'standards' you are looking to cover this academic year. It is often a good idea to develop the project around an area of the curriculum you are looking to deliver and cover, so that the project is an integral part of your teaching. The project is something students would experience and be taught and experience as part of the curriculum for the academic year. So, in designing the project – decide what you want your students to learn and plan backwards from there. This approach also helps you identify the learning goals and assessment strategy for the project from its outset.



List the general topics and themes you plan to teach

Subject	
Topic(s)	Key Stage
Topic(s)	Key Stage
Topic(s)	Key Stage
Topic(s)	Key Stage

Circle the Key Stage and topics that jump out at you as a potential starting point for project ideas.



The Driving Question

Activity

Once you have generated some project ideas, you need to also consider the learning outcomes and curriculum area(s) you would like the project to be mapped too and have identified – from this starting point...

Create some possible driving question(s) and sub question(s)

Possible starter to a Driving Question...

- How?
- What?
- Who?
- Why?
- Does?
- Can?
- Is?

See page 12 pf the PBL Toolkit

Project Based Learning Toolkit

Driving question exploration

Think about the curriculum and the learning outcomes you aim to meet and deliver through the project. Write down as many questions as you can and go with your first instinct – don't over think them!

Determine and focus on your driving question

From your initial ideas, select 2 potential project ideas. Try and come up with a project title or write a sentence explaining the overarching theme of each potential project

Project 1 driving question

Draft...

Refined...

Project 2 driving question

Draft...

Refined...

Activity

1. Think about your initial question ideas
2. Select the 2 'best' potential project questions
3. Draft and refine your 'best' question/ ideas sense check it against the question rubric
4. Write your 'best' question(s) in the PBL Toolkit page 13

See Page 13 PBL Toolkit

Determine and focus on your driving question

From your initial ideas, select 2 potential project ideas. Try and come up with a project title or write a sentence explaining the overarching theme of each potential project

Project 1 driving question

Draft...

Refined...

Project 2 driving question

Draft...

Refined...

Use the following rubric to do a self-check of your driving question⁸ to ensure the question is well thought out and grounded.

Challenging problem or question	
Includes features of effective PBL	<ul style="list-style-type: none"> ➤ The project is focused on a central problem or question, at the appropriate level of challenge ➤ The central problem or question is framed by a driving question for the project which is: <ul style="list-style-type: none"> – Open-ended; it will allow students to develop more than one reasonable answer – Understandable and inspiring to students – Aligned with learning goals; to answer it, students will need to gain the intended knowledge, understanding and skills
Needs further development	<ul style="list-style-type: none"> ➤ inappropriate for the intended students ➤ The driving question relates to the project but does not capture its central problem or question; it may be more like a theme ➤ The driving question meets some of the criteria in focusing on the driving question but missed others
Lacks features of effective PBL	<ul style="list-style-type: none"> ➤ several tasks); or the problem or question is too easily solved or answered to justify a project ➤ The central problem is not framed by a driving question for the project, or it is seriously flawed, for example: <ul style="list-style-type: none"> – It has a single simple answer – It is not engaging to students (it sounds too complex or "academic" like it came from a textbook or appeals only to a teacher



If you are working with colleagues try and sense check your 'best' question(s) you have created

Ask yourself

- **Will it enable sustained inquiry?**
- **Will it be of interest to students?**
- **Check you can not 'google' the answer**

Next work through Pages 14 and 15 PBL Toolkit

Choose one project idea and summarise your thinking by responding to the prompts:

Key stage:

Subject(s):

Driving question:

Sub questions:

Give a brief description of the project:

Outline the learning goals of the project.

What skills, knowledge and understanding will students gain from the project? How the project is explicitly linked to the curriculum? It may be useful at this point to also capture the wider skills students may develop through the project.

How will the project build on previous learning?

What concepts and formal teaching will students need to have in order to tackle the project?

How will you know if the project has been successful? What are the success criteria and indicators for students?

Top tip also consider when you are kicking off the project with students what will they Need to Know? - KWL

- Once you have devised the driving/guiding question
- **Pick one project idea/driving question**
- Think about when you are kicking off the project with students
- What do you/students already know?
- What do they need to know to address/answer the question?
- See the next slide which shows KWL and how they use the protocol within the XP Trust


NEED TO KNOWS

DEEPER
LEARNING
COMPETENCES

At the beginning of the project, students are introduced to key content in an authentic context via a stimulus or hook, which in PBL we call an entry event. Students use the entry event to initiate inquiry by reflecting on their prior knowledge of the key content and then generating questions that they "need to know" the answer to in order to successfully complete the project, and what their next steps might be to answer their questions. These questions, or need to knows, are used in an ongoing way throughout the project to track learning and guide inquiry.

WHY IS IT USEFUL?

As we implement rigorous "main course" projects—where standards and skills are learned through the work of the project—generating and using need to knows allows skill and knowledge acquisition to be tied to students' questions and immediate needs. Since learning becomes a process of finding answers to their own questions, students find greater purpose in their work, which results in increased engagement.



WHAT DO I DO?

Use this simple table on chart paper or in a digital document to capture need to knows:

KNOWS	NEED TO KNOWS	NEXT STEPS

Here are several recommended steps for facilitating the initial generation of need to knows:

STEPS	INSIGHTS/SUGGESTIONS
1. Launch the project with an entry event that engages students and stimulates their thinking. (Time: depends on the project)	<ul style="list-style-type: none"> Design the entry event in such a way that the key knowledge, understanding, success skills you plan to teach in this unit are included. This will enable students to ask the questions that you want them to answer during the project. Depending on the nature of the entry event, you might also share the driving question and the project information sheet, which offer project details, to make sure students will ask questions about the key knowledge, understanding and success skills addressed in the project.

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1

Project Based Teaching Strategies Guide