The STEM Approach

2nd – 6th August 2016

BRITISH COUNCIL

BỘ GIÁO DỤC VÀ ĐÀO TẠO
MINISTRY OF EDUCATION AND TRAINING

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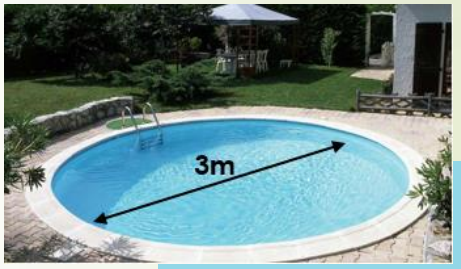
Aims

1. to establish a clear, shared vision of a STEM approach.
2. To develop the teaching of three key STEM skills:
    a) identifying STEM problems
    b) deploying suitable approaches to investigation
    c) analysing and evaluating of evidence.
3. to develop a sound and realistic plan for implementing this approach across schools, including lines of communication.

Using Real Life Context

Bennet et. al (2006) synthesised evidence on using context and found that it results in:

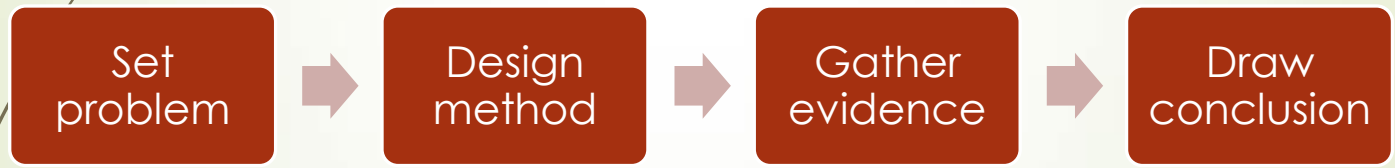
- Improved attitudes towards STEM
- The same development of understanding as conventional approaches
- More positive attitudes in girls as well as boys



Bennet, J.; Lubben, F. & Hogarth, S. (2007) Bringing Science to Life: A Synthesis of the Research Evidence on the Effects of Context-Based and STS Approaches to Science Teaching. *Science Education*. 92 (3) pp347-370

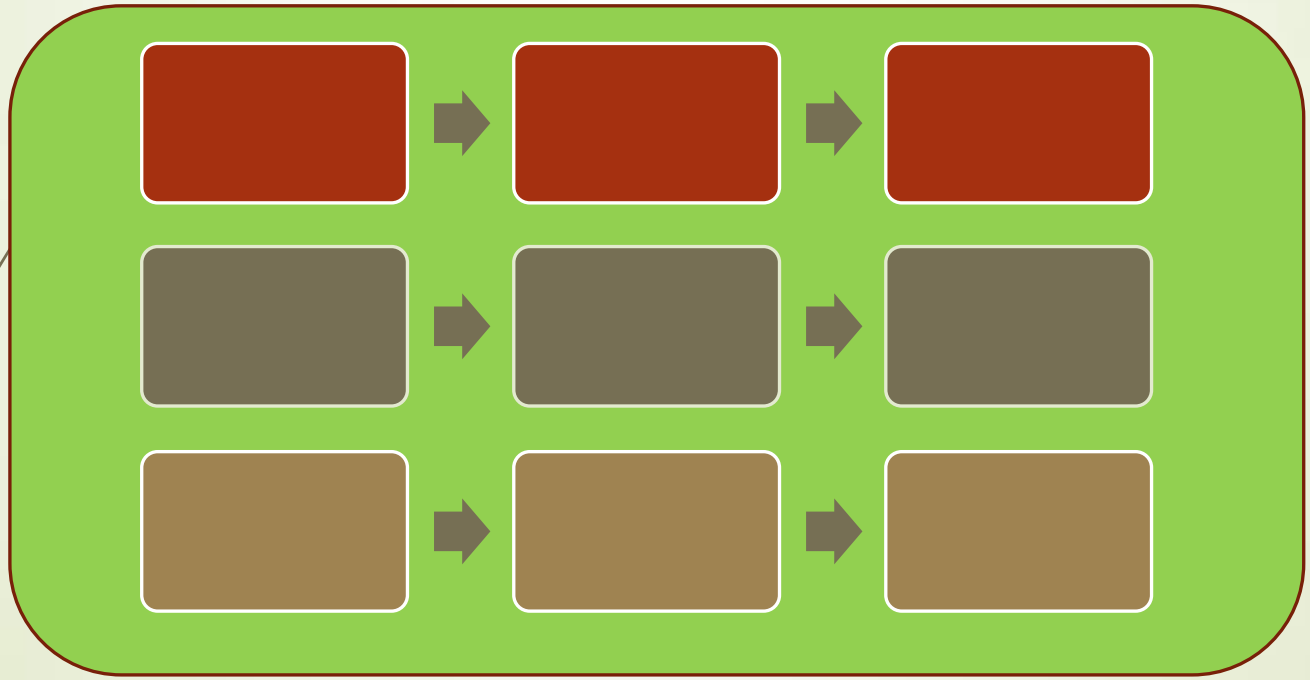
Ways to organise STEM problems in the curriculum.

1) Keeping STEM problem in single subject (e.g. water quality)



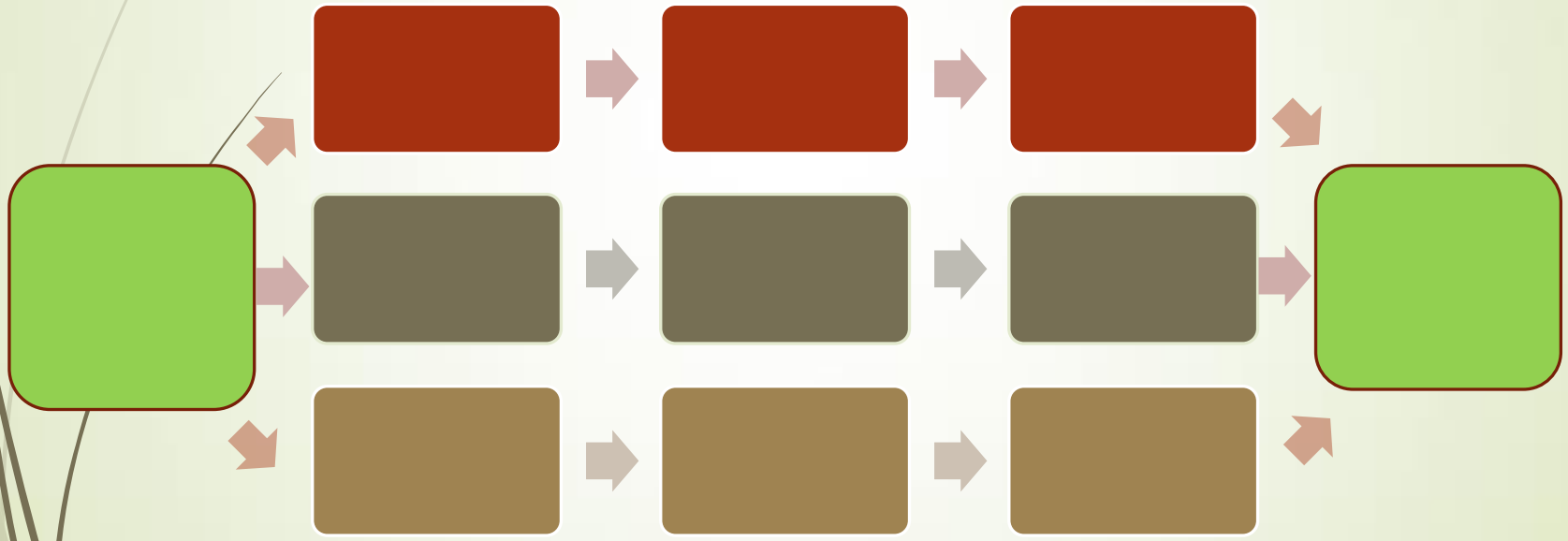
Ways to organise STEM problems in the curriculum.

2) Loosely linked
(e.g. water quality)



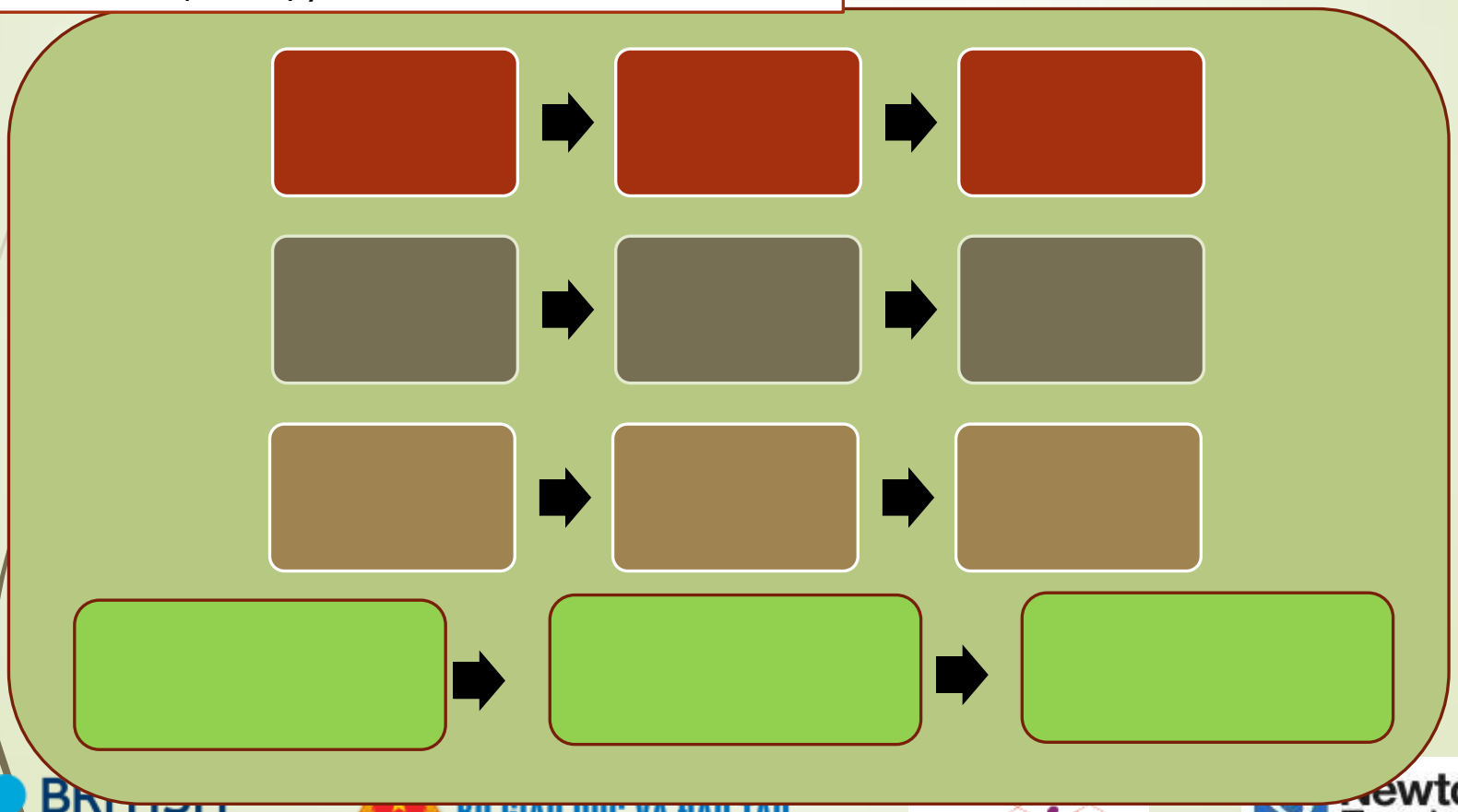
Ways to organise STEM problems in the curriculum.

3) Cross-curriculum start and end
(e.g. water quality)



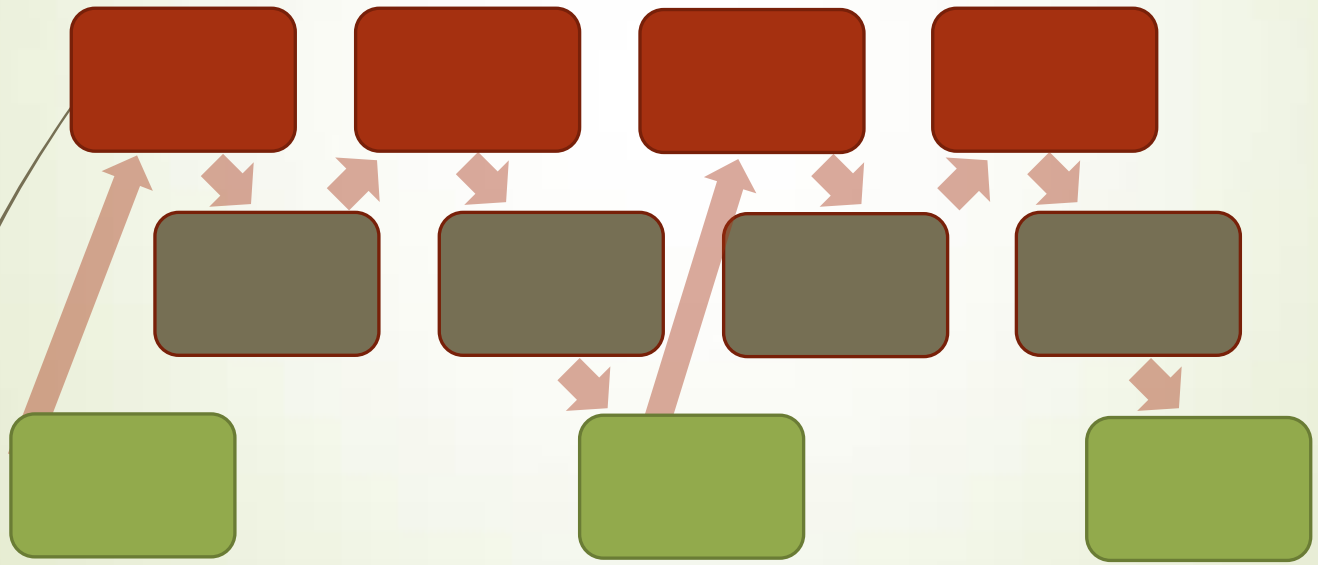
Ways to organise STEM problems in the curriculum.

4) Cross-curriculum sessions in parallel (e.g. water quality)



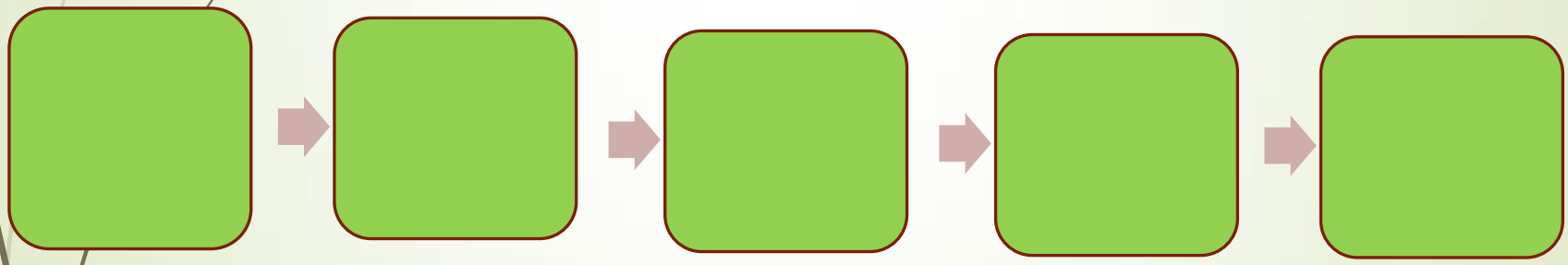
Ways to organise STEM problems in the curriculum.

5) Multiple coordinated subjects
(e.g. water quality)



Ways to organise STEM problems in the curriculum.

6) Immersion – all subjects taught by all teachers (e.g. water quality)



Developing a plan

- Inc. progress log

1st Project		
What needs to be done	**Responsibility**	**by when**
MOET to issue official guidance	MOET with BC / Exscitec	Sept
Design and send out approval forms to schools leaders (inc, safety, organisation, success criteria)	Exscitec / BC	Sept
Develop website/ sharing platform	MOET / BC / Exscitec	Oct
Schools resubmit detailed plans with approval form from school leaders	Exscitec / BC	Oct
Feedback and approval on plans (inc. safety)	Exscitec / BC	Oct
Establish regional meetings (and informal contact)	BC / school leaders	Oct
Establish support networks - UK 1:1 school links	Exscitec / BC / school leaders	Oct
Schools pilot with group	Teachers	Dec
Schools evaluate success and submit report	Teachers / school leaders	01-Jan
Feedback on report	Exscitec / BC	Late Jan
Modification of project and sharing across network	Teachers / school leaders	March

2nd Project		
What needs to be done	**Responsibility**	**by when**
Schools resubmit detailed plans with approval form from school leaders	Exscitec / BC	?
Feedback and approval on plans (inc. safety)	Exscitec / BC	?
Schools pilot with group	Teachers	?
Schools evaluate success and submit report	Teachers / school leaders	?
Feedback on report	Exscitec / BC	?
Modification of project and sharing across network	Teachers / school leaders	June

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Mission: Fight Malaria

GSK Schools Challenge 2016

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What do we need to develop as teachers?

teachers	**Strengths**	**Weaknesses**
school / students	**Opportunities**	**Threats**