

Teaching notes

- Part 1 and 2 of this STEM Challenge are the same – the idea is to build an improved viewing platform the second time based on their learning from the first attempt.
- We used wooden 10x10x10 cubes and 10x10 squares as weights – you may wish to adapt the slides for whatever weights you have e.g. books.
- Safety – look out for falling weights – ensure learners stand back when testing

STEM Challenge Project

Viewing platform
challenge



Learning Intentions

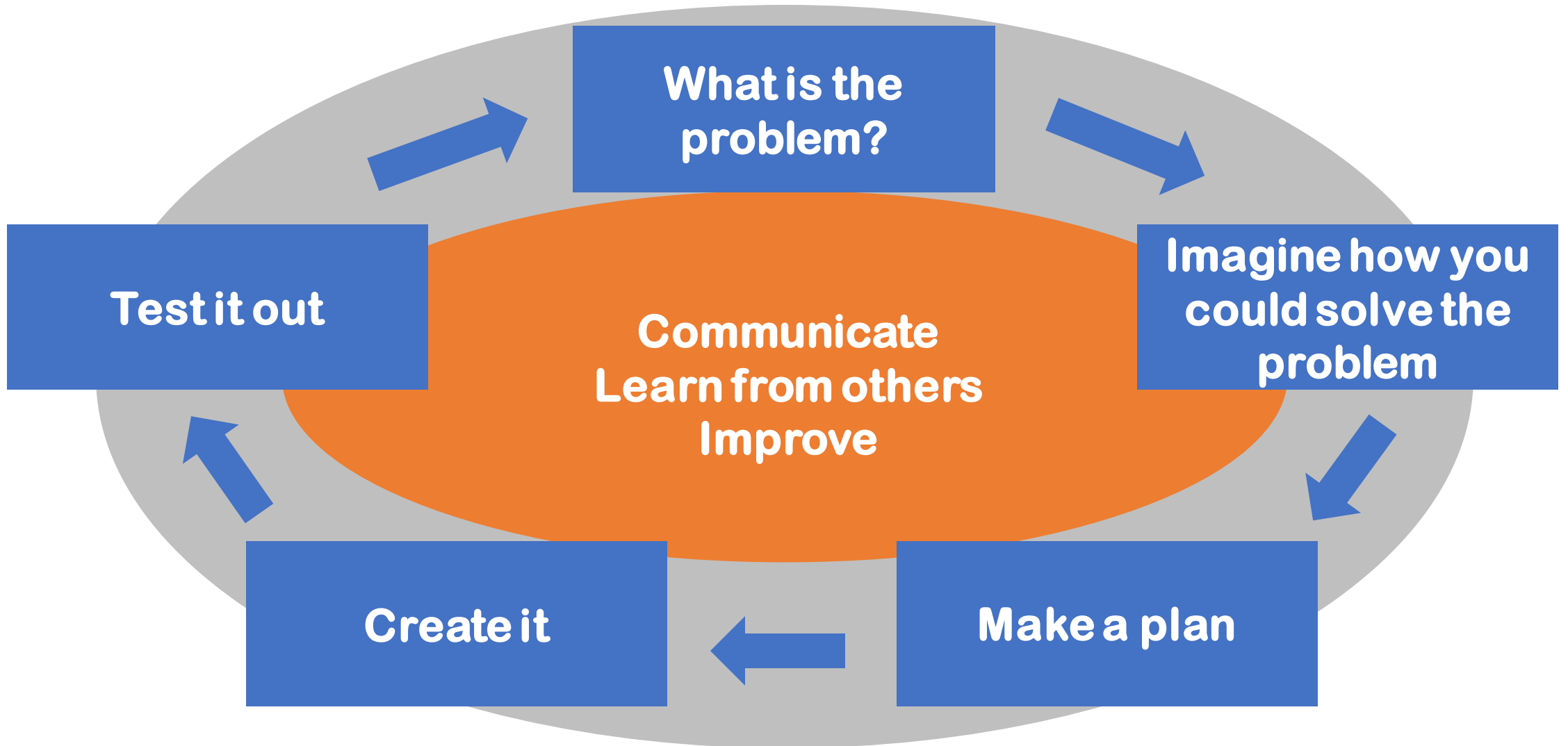
- To build up our **skills**:
 - Teamwork
 - Communication
 - Creativity
 - Critical Thinking
 - Resilience

- To use the **engineering design process** to solve a problem

What are your success criteria for this project?

- I would like to get better at
 - teamwork
 - communication
 - creativity
 - critical thinking
 - resilience
- How can you get better at this? Write down some strategies for yourself.
- At the end you will decide if you have been successful.

The Engineering Design Process



Viewing platforms

Beijing, China



Switzerland



STEM Challenge

- Build a viewing platform out from the edge of your desk – no safety barriers needed
- At least 20 cm long, from the desk edge to the front edge of the platform
- Your platform must be as strong as possible – it must hold a minimum of 5 wooden squares
- It must not be attached to anything apart from your desk
- You will be given a choice of materials
 - **Poster/A3 paper – max 2**
 - **A4 paper – max 2**
 - **String x 30cm – max 4**
 - **Scrap card – max 2**
 - **Small boxes – max 2 – these cannot be used as boxes – cut open**
 - **Sellotape**
- Test your platform using wooden blocks to find out how strong it is
 - **Cube = 10 points** **Square = 1 point** All wood must be balanced on the platform
 - **Add 1 point per extra cm** if your platform is over 20 cm from table to front edge
 - Work out your total points and write your score on your design sheet



STEM Challenge Project

Viewing platform challenge

Part 2



Learning Intentions

- To build up our **skills**:
 - Teamwork
 - Communication
 - Creativity
 - Critical Thinking
 - Resilience

- To use the **engineering design process** to solve a problem

What have you learned so far?

- Did anything go wrong with your design last time? How did you fix it?
- How could you make a strong platform?
- How can you hold up your viewing platform to make it stronger?



STEM Challenge

- Build an **improved viewing platform** out from the edge of your desk – no safety barriers needed
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- It must not be attached to anything apart from your desk
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Evaluation

- What is good about your design?
- What could you improve about your design?
 - How could you make the platform stronger?
 - What different materials could you use?
 - How would you change your design if you did this challenge again?
- How could you change the STEM challenge next time?

Self assessment

- Did you meet the Success Criteria you set yourself?



Yes – I was successful



Almost – I need some help



Not yet – I need to keep working on this

Instructions

- Write or draw instructions so someone else could build your design
- Number each step
- You could draw labelled pictures to show how to build your design