

Teaching notes

- You will need to introduce “Bob”, a small plastic figure, for this project.
- You will need enough plastic figures to share out between the class for testing their designs.
- For the slide challenge, you could extend the task by asking teams to create a safe landing zone at the bottom of the slide to avoid a crash landing. You may need to offer alternative materials such as cotton wool, bubble wrap, etc.
- For the parachute challenge, groups could try several different designs of parachutes as their first attempt is usually quite simple (eg figure just tied or stuck onto handles of plastic bag!). Add limitations for each try e.g. you must cut a shape from the plastic.

STEM Challenge Project

Getting down
safely!



Slide

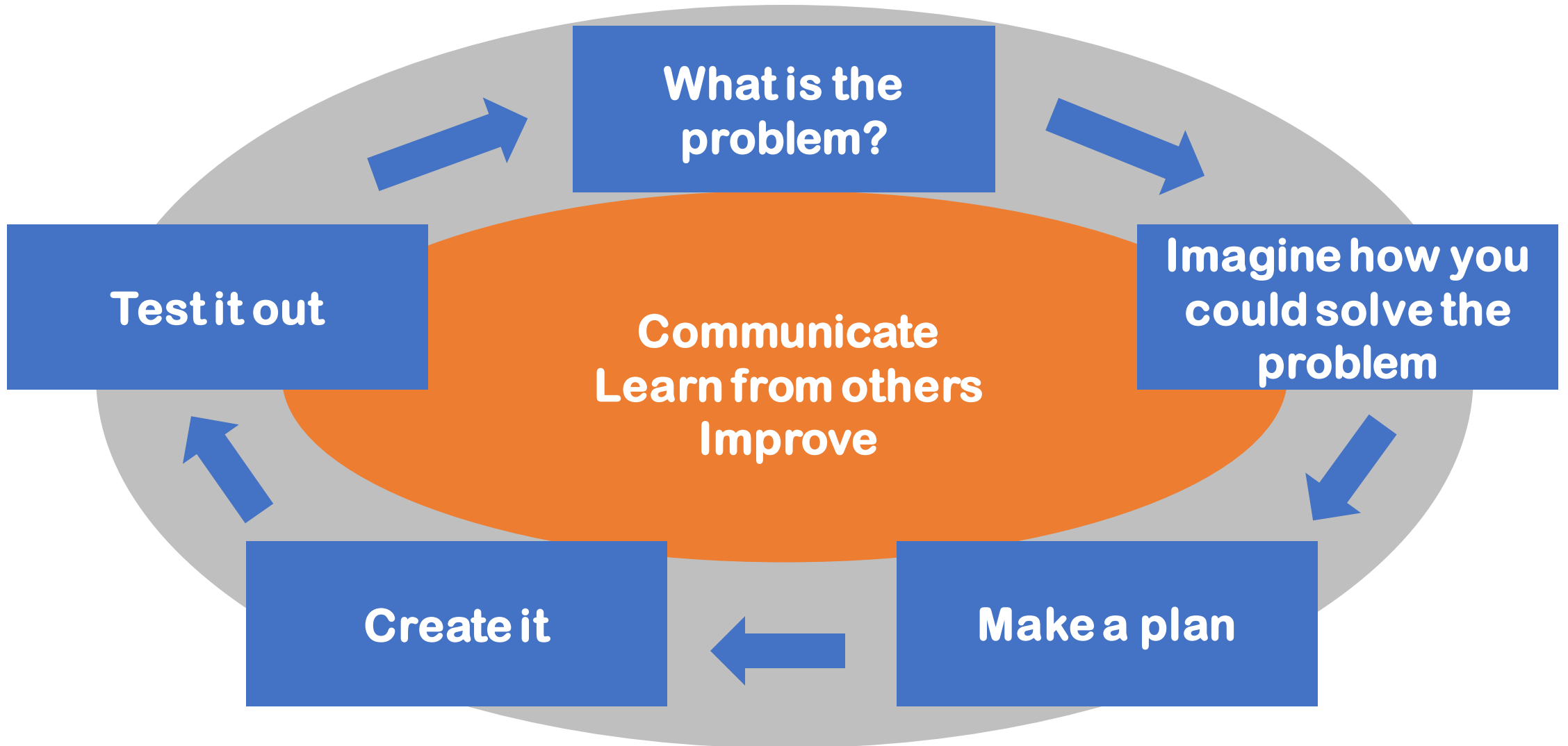
Learning Intentions

- To build up our skills such as **teamwork** and **communication**
- To use the **engineering design process** to solve a problem

How will you be successful today?

- What does successful **teamwork** look like?
- What can you do to be a good **communicator**?

The Engineering Design Process



STEM challenge

- Bob is stuck on top of the desk!
 - Design and build a **slide** for Bob so he can get down safely
 - You are not allowed to touch Bob while he travels down
 - Bob cannot be stuck or tied on to your design
 - You may attach your design to the desk and the carpet
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- You will be given a choice of materials:
 - **Card – max 2**
 - **A4 paper – max 4**
 - **Straws – max 6**
 - **Lollypop sticks – max 6**
 - **Sellotape**



Slide challenge

- What are the problems with this task?
- What can you predict being difficult?
- Imagine how you could solve this problem.





What can you learn from others?

- **Learning loop** – look at other people’s work.
- How did other groups tackle the STEM challenge?
- Which ideas did you see that were successful?
- What did you see that hadn’t worked, or that you wouldn’t use?

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Parachute



Learning Intentions

- To build up our skills such as **teamwork** and **communication**
- To use the **engineering design process** to solve a problem

How will you be successful today?

- What does successful **teamwork** look like?
- What can you do to be a good **communicator**?

STEM challenge

- Design and build a **parachute** to carry Bob down safely.
- You will be given a choice of materials:
 - **A4 card – max 1**
 - **Cotton wool pieces – max 1**
 - **Pieces of bin bag – max 1**
 - **Plastic bag – max 1**
 - **String – 4 short pieces**
 - **Sellotape**
- Evaluate your parachute and try to improve it.





What can you learn from others?

- **Learning loop** – look at other people’s work.
- How did other groups tackle the STEM challenge?
- Which ideas did you see that were successful?
- What did you see that hadn’t worked, or that you wouldn’t use?

Parachutes clip

- <https://www.youtube.com/watch?v=a7SQjHi5LAE>
- BBC Teach parachutes practical with eggs start at 0:30, finish at 3:10

Evaluation

- Discuss how your team approached the STEM challenge today
 - What did you learn today?
 - Which skills did you develop?
- How could you improve your design?
- Can you think of another similar STEM challenge you could set yourself to try at home?

Self-assessment at end of project

- We have been developing our skills by doing STEM challenges:
 - Teamwork
 - Communication
- How do you think you have developed your skills?
- Which skills do you still need to improve?