

# STEM Challenge Project

Balloon-powered  
rafts



# Learning Intentions

- To build up our **STEM 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.

# STEM Challenge

- Design and build a **raft** which is balloon-powered
- You will be given a choice of materials:
  - **Straws max 5**
  - **Lollypop sticks max 5**
  - **Yoghurt pots 1**
  - **Scrap plastic pieces 1**
  - **Plastic bags 1**
  - **Foil 1 piece**
  - **Sellotape**
  - **Balloon 1**
- To power your raft: Cut the neck off the balloon. Push the straw inside the balloon and tape the balloon on so there are no holes or gaps. You should be able to blow up the balloon through the straw.
- Test your raft and try to improve it



# STEM Challenge Project

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Part 2



# Learning Intentions

- To build up our **STEM skills**:
  - Teamwork
  - Communication
  - Creativity
  - Critical Thinking
  - Resilience
  
- To use the **engineering design process** to solve a problem



# What did you learn last lesson?

- How did your group tackle the STEM challenge?
- Which ideas did you have that were successful?
- What didn't work?
- What would you change about your design to improve it?
  - How could you make the raft carry more weight?
  - Could you improve the way the raft moves?
  - What different materials could you use?

New groups

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# STEM Challenge

- Using what you have learned, design and build a **new and improved balloon-powered raft**

- You will be given a choice of materials:

- **Straws max 5**
- **Lollypop sticks max 5**
- **Yoghurt pots 1**
- **Scrap plastic pieces 1**
- **Plastic bags 1**
- **Foil 1 piece**
- **Sellotape**
- **Balloon 1**



- To power your raft: Cut the neck off the balloon. Push the straw inside the balloon and tape the balloon on so there are no holes or gaps. You should be able to blow up the balloon through the straw.
- Test your raft and try to improve it
- Finding this too easy? How could you **challenge** yourself?



# 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?

# Evaluation

- Discuss how your new team approached the STEM challenge today
  - What had you learned from last week?
  - What did you learn from working with different team members?
- How could you improve your design?
- Can you think of another similar STEM challenge you could set yourself to try at home?

# 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