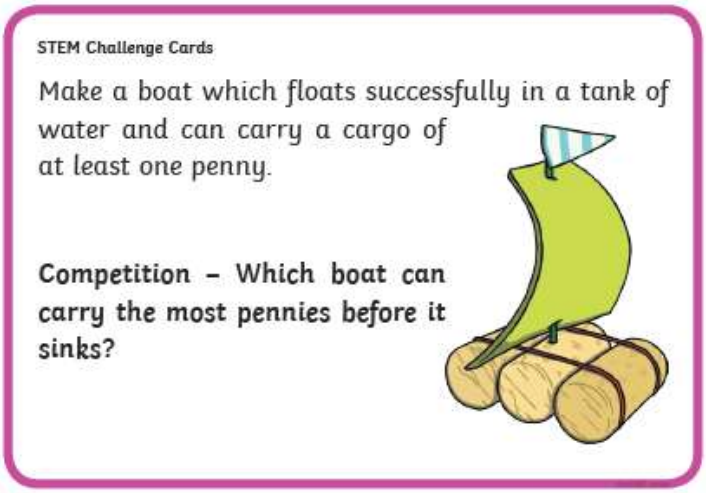
Science Home Learning **Activity 1**

The activities are suitable to do with children of different ages together, with more challenging questions for KS2 children to respond to. You can make one model together or make individual ones to try the competition. Take photos if you can and draw/write about any discoveries in home learning books.

Activity of the week:



Years 1&2 challenges:

How did you choose the materials to make your boat?

Why did you think it would float?

Years 3&4 challenges:

Does the position of the pennies on the boat affect how well it floats?

Try stacking them in different ways. Explain why this affects how well it floats.

Upper Key Stage 2 challenges:

If all of the pennies had to be carried on the back of the boat, how could you adapt the design so that it would still float? Also, think about what would happen when the pennies are unloaded.

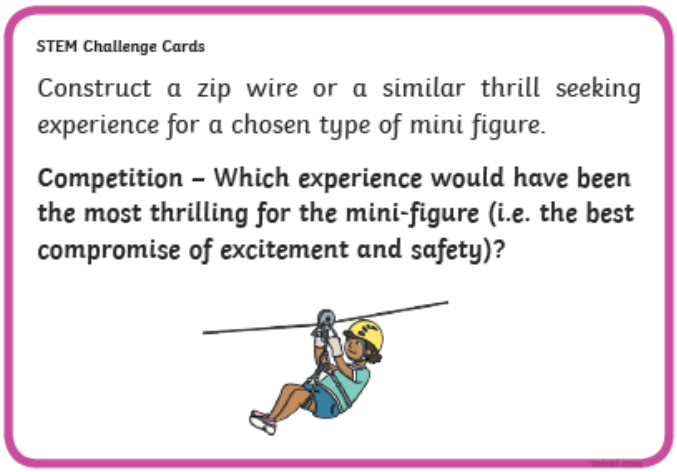
Extra Challenge:

Think about how it could be altered according to how many pennies were being carried each time it is loaded/unloaded.

Science Home Learning **Activity 2**

The activities are suitable to do with children of different ages together, with more challenging questions for KS2 children to respond to. You can make one model together or make individual ones to try the competition. Take photos if you can and draw/write about any discoveries in home learning books.

Activity of the week:



(Use any small figure/doll, or make your own if you don't have one. Any thread like material will work as a 'wire')

Years 1&2 challenges:

How can you make the figure go faster by moving the string?

How can you make the figure go slower by moving the string?

Years 3&4 challenges:

How does friction affect the speed that the figure travels?

How could you make it slower/faster by adding more/less friction to the string? Try out some ideas and time them.

Upper Key Stage 2 challenges:

Does the position of the harness on the figure affect the speed? Why?

Try different positions and time them.

Extra Challenge:

Can you create a pulley system to get the figure back to the top again?

Science Home Learning **Activity 3**

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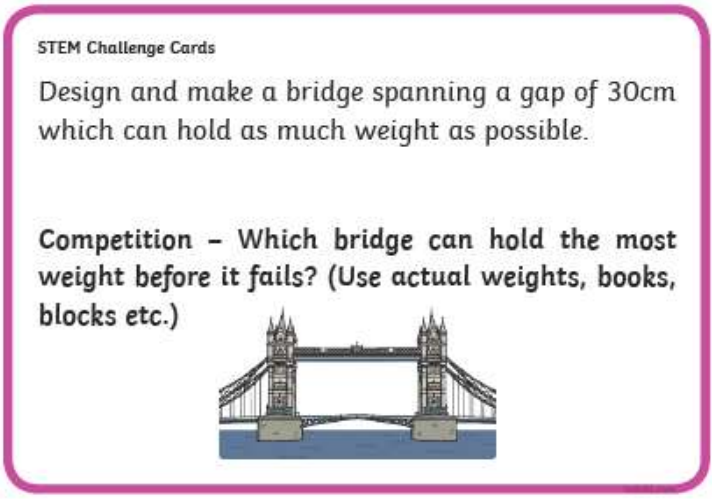
Activity of the week:



Years 1&2 challenges:

What happens to your bridge when you put weight on it?

How could you make your bridge stronger?

Years 3&4 challenges:

Place weights in different places.

Does the position of the weight affect how well the bridge works? Why?

Years 5&6 challenges:

How could you adapt the bridge to be 10cm longer?

What would you need and why?

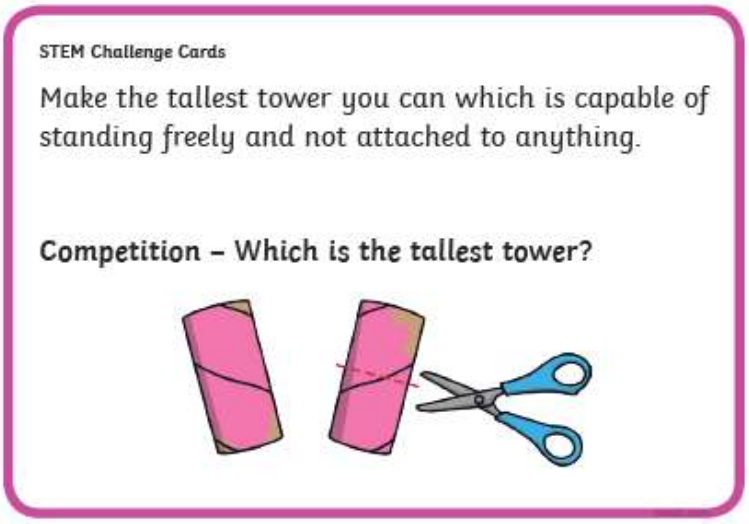
Extra Challenge:

Can you make a bridge that opens and closes to allow tall ships through?

Science Home Learning Activity 4

The activities are suitable to do with children of different ages together, with more challenging questions for KS2 children to respond to. You can make one model together or make individual ones to try the competition. Take photos if you can and draw/write about any discoveries in home learning books.

Activity of the week:



You will need to use a collection of whatever resources are available to you. Some ideas: loo rolls, spaghetti, newspaper (works very well), twigs or straws.

Years 1&2 challenges:

Did your tower get stronger or weaker as it got taller?

If it fell over, what did you do to repair and improve it?

Years 3&4 challenges:

Is a tower stronger if it has a wider or narrower base? Why?

Years 5&6 challenges:

If you had to have a narrow base that took up no more than 400cm^2 (20x20cm) how could you strengthen the structure to allow for more height?

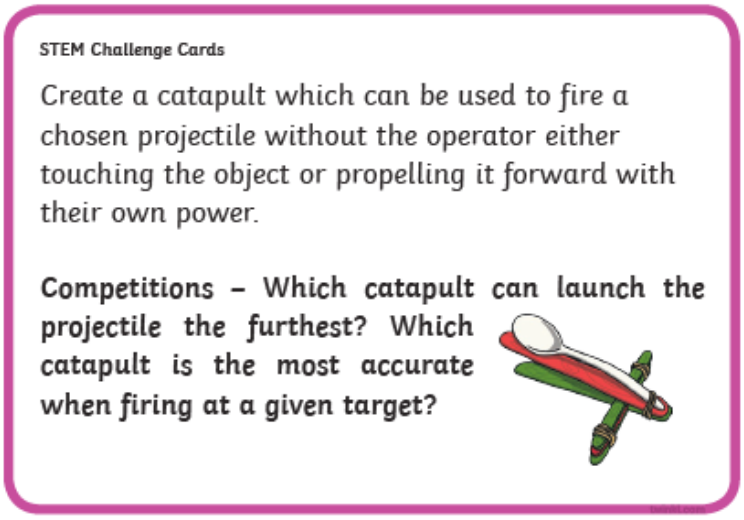
Extra Challenge:

Make your tower strong enough to support a figure climbing up it to do maintenance work!

Science Home Learning **Activity 5**

The activities are suitable to do with children of different ages together, with more challenging questions for KS2 children to respond to. You can make one model together or make individual ones to try the competition. Take photos if you can and draw/write about any discoveries in home learning books.

Activity of the week:



Safety: Make sure you only use your catapult where you won't hit anybody or anything that might break!

Years 1&2 challenge:

How did you make the object fly across the room?

Years 3&4 challenge:

What could you change to make the same object go further?

Years 5&6 challenge:

Does the shape of the object being projected affect its flight path? Why?

Prove this by trying different shaped projectiles.

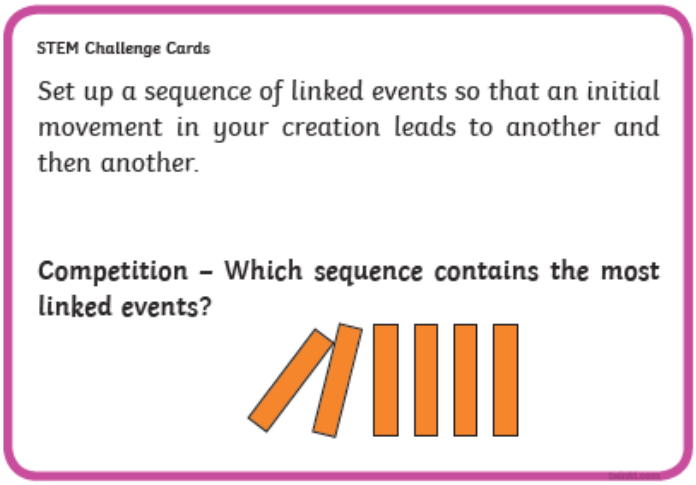
Extra Challenge:

Make a target board for your catapult and work on making it accurate so you can aim at specific targets more easily.

Science Home Learning **Activity 6**

The activities are suitable to do with children of different ages together, with more challenging questions for KS2 children to respond to. You can make one model together or make individual ones to try the competition. Take photos if you can and draw/write about any discoveries in home learning books.

Activity of the week:



Watch this clip for inspiration: https://youtu.be/ICv5owYrW4w

This is an example of an easy Rube Goldberg machine. Rube was an American cartoonist, sculptor, author, engineer and inventor famous for such machines. There are many you can look up online.

Years 1&2 challenges:

How did you choose the objects to put in your sequence?

Did you use different heights? Why?

Years 3&4 challenges:

How many different actions did you have in your sequence?

Years 5&6 challenges:

How many different forces were in action?

Which played the most important part? Why?

Extra Challenge: Make a longer, more complex sequence!