



## MYSTERY CHALLENGE

### SECRET DESIGN

#### Tips for teachers:

- Move between the 'Communicator', who can see the secret design, and the rest of the group. Highlight when the Communicator says one of the banned words – train, carriage, wheels.
- Encourage them to use shapes to describe the design.
- Encourage the rest of the group to ask questions – how many semi-circles are there? Which end is the engine? How many doors are there?
- Keep track of the ten minutes, and use the reflection questions to prompt a discussion at the end.

## MYSTERY CHALLENGE

### BUILD THE TOWER

#### Tips for teachers:

- The additional materials can be used to move the cups - for example, putting an elastic band round a cup and pulling it tight from either side.
- Encourage the group to look at the additional materials and discuss as a team how they could be used to move the cups. Which way up should they stack the cups? Do the cups need securing or can they balance?
- Allow them to look at and touch the materials for 2 minutes before you start the timer – this is when they can no longer touch the cups with their hands.
- Keep track of the ten minutes, and use the reflection questions to prompt a discussion at the end.

## MYSTERY CHALLENGE

### RUN THE RAILS

#### Tips for teachers:

- Encourage the group to spend a few minutes initially discussing their ideas and writing some suggestions down.
- What could they do to make the marble run easily? What could block the marble?
- Keep track of the ten minutes, and use the reflection questions to prompt a discussion at the end.

# MYSTERY CHALLENGE

## THINK OUTSIDE THE SQUARE

### Tips for teachers:

- In groups of 5, pupils should stand in a circle facing each other, and join hands across the group, one hand with a different person. When everyone is joined, they must untangle themselves without letting go of anyone's hand at any point.
- Keep track of the ten minutes, and use the reflection questions to prompt a discussion at the end. If they complete this task quickly, open the extension envelope.

### Extension

- Both groups will be given a large sheet of paper and a pair of scissors, and must work out a way that all of pupils can fit through the square. Encourage the groups to think about how they could do this before they start cutting.
- Look at the instructions while they discuss their ideas and provide a prompt if necessary e.g. how could we cut into the paper whilst keeping the edge of the sheet intact?
- Ask them to think about times they have made paper snowflakes for inspiration.

### Answer

1. Fold the piece of paper in half lengthways. Fold the page so that the two long sides are folded towards each other, so the paper becomes a longer rectangle.

2. On the edge where you made the fold, cut a long skinny rectangle, not quite to the edge of the page, like this.

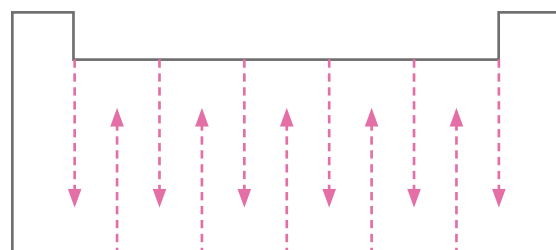


3. Make the first cut. Start on the stub on the left hand side on the folded edge. Cut in a straight line towards the edge that hasn't been cut, and stop about a centimetre from the edge.

4. Now flip over the paper and start cutting a line from the edge that is open. Cut an equal distance from the first cut, and stop a centimetre from the opposite edge.



5. Repeat this until you have reached the other side of the paper. Carefully unfold the paper and you should have a ring that you can fit through, one by one.





## MYSTERY CHALLENGE

### STICK TOGETHER

#### Tips for teachers:

- Keep track of the 10 minutes and let the class know when the time is up.
- Ask the winning group to explain how they completed the task and what their technique was.
- To wrap up, ask the groups to raise hands and explain what skills were needed to complete the challenge and why.
- For the extension, the class will need to be split into groups of five. Three pupils from each group will stand on a sheet of material at the same time. Each team needs to turn their sheet over without anyone who is standing stepping off. The team that completes the challenge first wins.

## MYSTERY CHALLENGE

### DROP THE MARBLE

#### Tips for teachers:

- As a team, the class will create a run for a marble that can allow it to travel safely down a drop of 1 metre.
- Keep track of the 10 minutes and let the class know when the time is up.
- When the time is up, ask the class to share examples of the skills they used, what made the challenge difficult and how they problem solved to make the marble run a success.

# MYSTERY CHALLENGE

## SECRET DESIGN

### Skills you will need:

- Communication
- Creativity

### Equipment you will need:

- Paper
- Pencils
- Secret design sheet

### Time you have

- 10 minutes

Choose one person in your group to be the Communicator. Give them the secret design sheet inside the envelope. They should not show the design on this sheet to anyone else in the group.

### The challenge:

The Communicator is going to describe what they see and your group must draw the same design on paper.

### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?

# MYSTERY CHALLENGE

## SECRET DESIGN

### FOR THE COMMUNICATOR'S EYES ONLY!

You must describe the design below. Only you can look at the design.

You cannot say these words when you describe it:

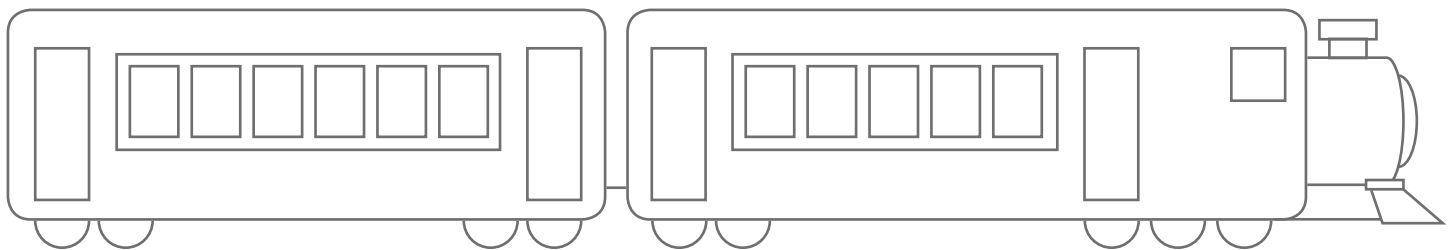
**Train**  
**Carriage**  
**Wheels**

Which words might help? You could try:

**Semi-circle**  
**Rectangle**  
**Square**  
**Engine**

#### Top tip

Communicating is more than just speaking. Could you use actions and miming to help? Could you tell them how many of each shape appear?



# MYSTERY CHALLENGE

## BUILD THE TOWER

### Skills you will need:

- Problem solving
- Communication

### Equipment you will need:

- Plastic cups
- Elastic bands
- String
- Paper clips

### Time you have

- 10 minutes

### The challenge:

Get into groups of 5. You need to build a tower of cups at least 3 layers tall — the group with the tallest tower is the winner.

You are not allowed to touch the cups with your hands at any point — you can only use the additional materials to move the cups.

### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?

# MYSTERY CHALLENGE

## RUN THE RAILS

### Skills you will need:

- Team work
- Evaluation

### Equipment you will need:

- Paper
- Masking tape
- 1 marble

### Time you have

- 10 minutes

### The challenge:

You must create a bridge that can transport a marble along a route between two tables or chairs that are one metre apart.

You will need to plan how your bridge will allow the marble to cross without you touching it.

### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?

## MYSTERY CHALLENGE

### THINK OUTSIDE THE SQUARE

#### Skills you will need:

- Creativity
- Communication
- Problem solving

#### Equipment you will need:

- (For the extension, 1 piece of A3 paper per team of 5, 2 pairs of scissors)

#### Time you have

- 10 minutes

Get into two groups of 5. Stand in a circle facing each other, and join hands across the group, one hand with a different person.

#### The challenge:

When everyone is joined, you must untangle yourselves without letting go of anyone's hand.

If you complete this challenge, ask your teacher for the extension envelope.

With just a large sheet of paper and a pair of scissors, find a way that all of your group members can fit through the square. Make sure you think and plan before starting, as you only will have one go at getting through the square.

#### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?



# MYSTERY CHALLENGE

## STICK TOGETHER

### Skills you will need:

- Creativity
- Problem solving
- Organisation

### Equipment you will need:

- 1 sheet of material per team of 5

### Time you have

- 10 minutes

Get into two groups of five. Each group will be given a large sheet, which three people must stand on at the same time.

### The challenge:

Turn the sheet over without anyone who is standing on it falling off. The group who completes the challenge first will win!

Make sure you think and plan before starting, and help each other so no one falls off.

### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?

# MYSTERY CHALLENGE

## DROP THE MARBLE

### Skills you will need:

- Communication
- Collaboration
- Organisation

### Equipment you will need:

- Newspaper
- Tubing
- Tape
- Back board
- Egg box
- Scissors

### Time you have

- 10 minutes

### The challenge:

As a team, you will need to create a run for a marble that can allow it to travel safely down a drop.

If you choose less than 5 pieces of tubing, you can use scissors and tape!

If you choose less than 7 pieces of tubing, you can use as much tape as you like.

If you choose between 7 and 10 pieces of tubing, you can only use 10 pieces of small tape to make your marble run.

Only one team member can touch the scissors, only one team member can touch the tape, and only one member can touch the back board.

### After the task

Answer the questions below:

- Share an example of how well you demonstrated the skills in this challenge.
- How well do you feel that you worked as a team?
- Can you think of an example of this?
- If you were working on the Zoom Rail project which skills do you think you would need to practice?