

# Spirit of Innovation

## STEAM Resources



### Maths

#### Year Three

#### Number & Measure

All systems checked and ready to go

#### Links

#### Resources

##### Measure

- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

##### Number – number and place value

- Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Identify, represent and estimate numbers using different representations
- Read and write numbers up to 1000 in numerals and in words
- Solve number problems and practical problems involving these ideas.

##### Number – addition and subtraction

- Add and subtract numbers mentally, including:
  - A three-digit number and ones
  - A three-digit number and tens
  - A three-digit number and hundreds
- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- Estimate the answer to a calculation and use inverse operations to check answers
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

##### Statistics

- Interpret and present data using bar charts, pictograms and tables
- Solve one-step and two-step questions [for example, 'how many more?' and 'how many fewer?'] using information presented in scaled bar charts and pictograms and tables.

- A4 paper
- Paper plane instructions ([Download](#))
- Ruler
- Pencils
- Markers
- Tape measure/metre sticks
- Masking tape
- Chalk
- Ruler
- Clipboard
- Result sheet ([Download](#)) on paper or electrical device

#### Skills

- Follow instructions
- Accurate measuring

#### Questions

- How are you going make your plane? (Online/template/instructions/previous knowledge)



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- Reading and recording numbers
- Identifying the furthest/nearest measurement
- Compare distances
- Understand the reasons for a fair test
- Create a fair test
- Discuss findings using vocabulary such as; heavy, light, bigger, smaller, more, less and furthest

- If you want a plane to fly a long way, what do you need to consider?
- How will we make it fair?
- How will we know how far each plane has gone?
- What will we use to measure?
- Which units allow for the greatest accuracy? Why? (centimetres, millimetres, metres)
- How will we record the results?
- How will we identify whose plane went the furthest?

## Activity

### Activity One

Whole Class/Individual/Pairs

(40 - 60 mins)

Additional space required outside area/hall

Introduce the topic of paper planes to the pupils, tell them there will be a 'test flight' to see which one(s) goes the furthest. Request that they need to design and make their planes using one piece of A4 paper. These planes can be made by individuals or as pairs; using online research, a template, instructions or from previous knowledge.

All pupils to add their name to their plane, in order to identify them.

Bring the class together before the 'test flight' to discuss how to make it fair. For example: mark out a place where everyone throws from, decide if planes are going to be thrown one at a time, how many throws per plane etc.

Mark out the 'flight path' with a throwing line and then run a tape measure, or some metre sticks, along the edge of the flight path.

Once a plane is thrown, mark the ground with chalk, or masking tape if inside, with the name of the thrower. Record the distance on the result sheet ([Download](#)) (If recording results on paper, and throwing more than once, add the pupil's names before printing the required number of copies.)

As a class, reflect on the most successful planes. Discuss 'why' they think these designs travelled further. Maybe compare it to others that didn't go so far.

### Activity Two

Whole Class/Individual/Pairs

(40 - 60 mins)

Additional space required outside area/hall

Select the top six planes from Activity One.

In small groups make observations of these six planes. Use a ruler to measure the wing span and fuselage length, record these findings on a table ([Download](#)) Discuss their observations in small groups or as a whole class.



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Using this knowledge and data, ask individuals/pairs to design and make a second paper plane.

Then repeat Activity One

### Extension

Compare the data from plane one and plane two.

*Did the improvements to the design reflect in the distance travelled?*

If so:

*How much further did it travel?*

*Suggest what improvements lead to plane two's success?*

If not:

*Why not?*

*What improvements do you think your plane still needs to go further?*

# Spirit of Innovation STEAM Resources



## Maths

### Year Three

### 2D Shapes & Measures

### Tangram Teaser

#### Links

##### Measure

- Measure, compare, add and subtract: lengths (m/cm/mm)
- Measure the perimeter of simple 2-D shapes

##### Geometry – properties of shapes

- Draw 2-D shapes; recognise 2-D shapes in different orientations and describe them
- Recognise angles as a property of shape or a description of a turn
- Identify right angles
- Identify horizontal and vertical lines and pairs of perpendicular and parallel lines

#### Resources

- Tangram PowerPoint  
([Download](#))
- A4 paper
- Pencil
- Colouring pencils/pens
- Ruler
- Tangram Template  
([Download](#))

#### Skills

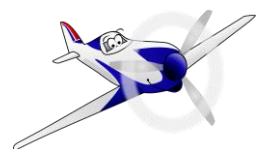
- Follow instructions
- Accurate measuring
- Reading and recording numbers

#### Questions

- What aircrafts are you going to make?
- How are you going to measure the perimeter?



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- Discuss findings using vocabulary such as; bigger, smaller, more, less

## Activity

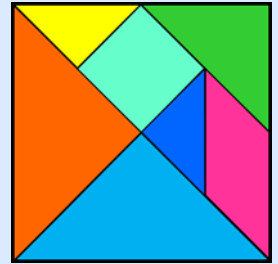
### Activity One

Individual  
(40-60 mins)

Introduce the topic of tangrams using the PowerPoint ([Download](#))

Challenge the pupils with a number of tasks:

- Who can make the most aircrafts, only using the given tangram shapes?
- Who can make a tangram aircraft with the longest perimeter?
- Who can make a tangram aircraft with the shortest perimeter?
- Create your own tangram template your shapes must all be 2-D and fit into a square.
- What aircrafts can you make using your tangram design?



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