

# Spirit of Innovation

## STEAM Resources



### Technology

#### Year Three

#### Data Collection

#### Our Planet

#### Links

- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Recognise common uses of information technology beyond school

#### Resources

- Mixed recycling
- Labelled Card to place sorted items on ([Download](#))
- Digital camera/phone
- A4 Card
- 5 Yoghurt pots/ paper cups
- Three thin dowels
- Sticky tape
- Small bottle
- Stop watch
- Hole punch
- Scissors
- Marker pen
- Steel needle
- Bar Magnet
- Shallow dish
- Plastic cup/Yoghurt pot
- String
- Date handling software
- Word processing/An Art package
- Recycling Information Chart ([Download](#))
- Weather Station Information Chart ([Download](#))
- How to make an anemometer ([Download](#))
- How to make a Windsack ([Download](#))
- How to make a compass ([Download](#))
- How to make a rain gauge ([Download](#))

\* Please use recycled materials to make weather station

#### Skills

- Working in a team
- Working as a pair
- Discussing ideas
- Use internet research with increasing independence

#### Questions

- How is technology used to help the environment?
- How could we use technology to encourage others to 'go green?'
- How can we use technology to show our findings?



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- Able to structure and organise digital content
- Collect, manipulate and present findings
- Record findings using data handling software
- Represent ideas using an art package
- Build a weather station from recycled materials.

- Can you record your finding using a pie chart, bar graph or picture graph?

## Activity

### Activity One

Whole Class/pairs  
(20 - 30 mins)

Teacher to provide a collection of items in their 'typical' classroom bin (obviously these items will need to be collected prior to this lesson in order to be washed and also to allow for a good mix of items)

As a class to sort these 'rubbish items' into groups: plastic, cardboard, paper, batteries, material, glass, metal, small appliances, food, non-cycling items. Once all items are sorted into groups, the class will need to record how many items are in each group. *\*Take photos of these groups or stick the 'rubbish' items to a labelled piece of card.*

In pairs and using the data collected, record findings using a data handling package. Choose to present their findings as a pie chart, bar graph or picture graph. Recycling Information Chart ([Download](#))

*\* Display the pupil's pie chart, bar graph or picture graph alongside the photos or labelled cards from the sorting activity. Leaving some room for Activity Three 'Being Green' posters.*

### Activity Two

Groups/mixed ability pairs  
(40 – 50 mins)

Links with Science, Maths and Engineering – Make Your Own Weather Station  
(Compass, windsock, rain gauge and anemometer)

Once the weather station has been made and set up in a suitable area, collect data over a 1-4 week period. Record findings on the Weather Station Information Chart ([Download](#))

In pairs and using the data collected, record findings using a data handling package. Choose to present their findings as a pie chart, bar graph or picture graph.

Using the recorded data; discuss what date would be the best for 'trying to break the electric air spend record,' give reasons why backed up with evidence from the graphs.

### Activity Three



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Individual  
(30 mins)

Using an art package, Word or PowerPoint and a search engine. Design a 'Being GREEN' poster. These should be based on their findings from this technology topic. For example: recycling, saving water, turning off lights when you leave a room, not running a tap whilst cleaning teeth, collecting rain water. Use these technologies purposefully to create impactful and organised digital posters. Remembering to use technology safely, respectfully and responsibly.

Children's search engines;

[www.kidsclick.org](http://www.kidsclick.org)

<http://kids.yahoo.com/>

[www.askforkids.com](http://www.askforkids.com)

### How to Make an Anemometer

#### Materials:

5 small paper cups/yoghurt pots  
Hole punch  
Scissors  
Sticky tape  
3 thin wooden dowels  
Empty water bottle  
Stopwatch

#### Method:

1. Use the hole punch to make a hole in the side of each of the 4 paper cups or yoghurt pots.
2. Mark one of the cups with an X
3. Use the hole punch to make 4 holes spaced evenly around the rim of the remaining cup/yoghurt pot. This will create the centre of the anemometer.
4. Slide two of the wooden dowels through the holes in the centre cup. They should cross over in the middle.
5. Insert the ends of the dowels into the holes of the other cups and then tape them into place. Making sure all or the cups/yoghurt pots are all facing the same direction.
6. Take the remaining dowel and make a hole in the bottom of the centre cup.
7. Push the dowel up until it meets the other pieces of dowel and tape everything together. This will create your rotation axis.
8. Put the centre dowel into an empty water bottle. Secure the bottle into the ground, so it stands up in strong winds
9. Begin testing!

### How to Make a Windsock

#### Materials:



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Plastic cup/Yoghurt pot  
String  
Plastic bags  
Sticky Tape  
Blu Tack  
Scissors

**Method:**

1. Cut the plastic bag into thin strips
2. Stick these strips around the edge of the plastic cup/yoghurt pot.
3. Carefully pierce a hole through the bottom of the plastic cup/yoghurt pot (*hint: use a ball of Blu Tack and a sharp pencil or pair of scissors*)
4. Thread both ends of the string through this hole.
5. Knot the end a secure in place with sticky tape.

Place near to the compass so you can tell which direction the wind is blowing. Alternatively use the compass to find North and then using chalk mark the ground with N, S, E, W, NE, NW, SE, SW

### How to Make a Compass

**Materials:**

Bar magnet  
Steel needle  
Small dish  
Water

**Method:**

1. Fill a small dish with water.
2. With the needle pointing towards north over the bar magnet, stroke the magnet in this circular motion 50 times.
3. Place the needle carefully on the top of the water – to let it rest on the surface tension

### How to Make a Rain Gauge

**Materials:**

A two-litre plastic bottle  
A sharp knife or sharp scissors (adult to use)  
Coloured tape  
Sticky tape  
A Permanent Marker  
A Ruler  
Water  
Small pebbles/marbles



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**Method:**

1. Get an adult to carefully cut the top of the bottle off at the wide part just below where it begins to get narrow.
2. Place some pebbles or marbles in the bottom of the bottle—this will help it from getting blown over, if it's windy.
3. Turn the top of the bottle upside down—make sure there's no cap on it! This will act as a funnel. Place it in the bottom part of the bottle, pointing downward. Line up the cut edges and tape together, so the top part is held firmly in place.
4. Stick a long piece of coloured tape to make a straight vertical line from the top edge of the bottle to the bottom.
5. Use a marker pen to draw a line on this piece of tape just a little above the top of the pebbles. This will be the bottom of your rain gauge, mark it with 0 cm.
6. Put the ruler against the vertical tape so that the 0 cm line lines up with the bottom mark. Then mark every centimetre to the top of the bottle.
7. Set the bottle on a level surface and pour some water in until it reaches the bottom mark - 0 cm.
8. Your rain gauge is now ready to go!

Put the rain gauge outdoors. You want somewhere level, open to the sky and somewhere that is not likely to get too windy. Make sure there isn't anything hanging over the gauge that could either block any rain or make extra raindrops drip into the bottle (like a tree or a power line or the edge of a roof).



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