

# EARLY YEARS RESOURCE PACK

British Science Week  
9-18 March 2018

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

This resource pack aims to be your 'one-stop-shop' for supporting you during British Science Week, but it can be used at any time. Feel free to adapt or extend the activities to suit your students' needs and the curriculum you are delivering. In addition to the activities in this pack, there are lots of other ways to enthuse and engage your students throughout the Week.

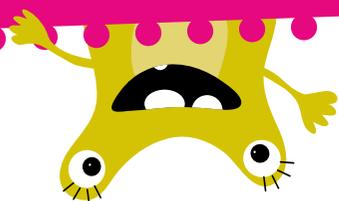
In developing this pack, we have looked for activities which break down the stereotypes surrounding STEM and promote cross-curricular learning. We encourage you to use British Science Week as an opportunity to link STEM to other curriculum subjects and to your children's own backgrounds, lives and interests.

#### **British Science Week events**

You can either create your own club, class or school event or search for things happening near you on our website. Last year, there were over 5,000 events reaching more than 1 million people. Help us make British Science Week 2018 even bigger and better! Visit [www.britishscienceweek.org](http://www.britishscienceweek.org)

#### **The Year of Engineering**

2018 is The Year of Engineering. This is a chance to celebrate the UK's engineering heritage, invest in skills and inspire young people to consider a career in engineering. Get your students to take a fresh look at engineering using activities in this pack.

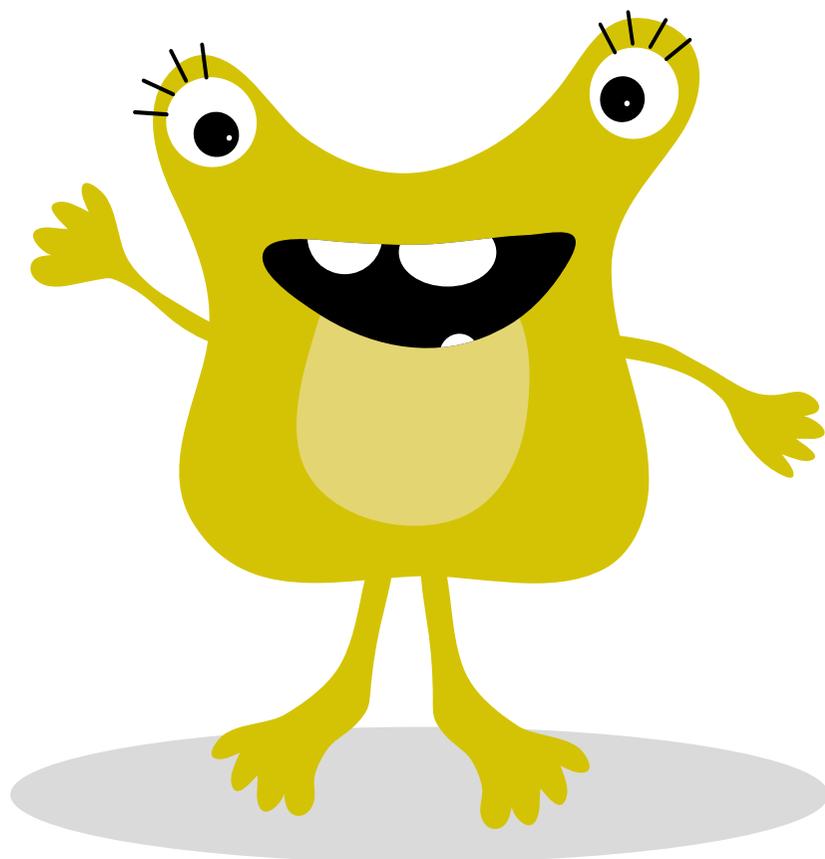


#### **Early Years Explorer Award**

Each child who takes part in at least four activities from this pack can get a British Science Week 2018 Explorer Award. To find out how to register and get your certificates visit [www.britishscienceweek.org/explorer-award](http://www.britishscienceweek.org/explorer-award)

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The theme for this year's British Science Week is **exploration and discovery.**



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## POSTER COMPETITION

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## About this activity

This activity is designed to get children thinking about what bugs can be found in their natural environment, what materials bugs like to live in and what they like to eat.

Children will make a bug hotel by building a nice cosy environment that little critters will enjoy living in. They can get creative by decorating it too!

## Kit list

- A flower pot
- Stones
- Twigs
- Bark
- Dried leaves
- Waterproof marker
- Sugar cubes

## Key words

Bugs, eat, garden, live, environment habitat, insects

## Exploring the outdoors

# Bug hotel



### What to do

1. Find a good spot where you'd like to put your flower pot (perhaps near some trees or bushes) and put a few stones next to the flower pot to stop it rolling over or blowing away.
2. Fill it with twigs, bark and dried leaves that will make it cosy for your guests.
3. Add a few sugar cubes to tempt them in, and maybe add a personalised 'welcome' sign at the front.

### Extra things to do

Your children could make a simple tally by going out each day and counting how many of each type of bug they find in the hotel.

Why not get creative and decorate the hotel too?

Find more activities here  
[www.okido.co.uk/schools](http://www.okido.co.uk/schools)

### Things to think about

The children can consider:

- Where could you look for bugs outside?
- What sorts of bugs might you find?
- What kind of places do bugs like to hide in?
- What do you think bugs like to eat?

## Watch out!

Be careful when handling bugs as they may bite or sting.

Wash hands after working outside.



## About this activity

This activity is designed to get children to understand the concept that a seed turns into a plant and that plants need water, sun and air to grow.

In this activity, children will be sprouting bean seeds of their own!

## Kit list

- Clear snap lock bags
- A few kitchen dish cloths
- Different beans, e.g. black-eyed beans, broad beans or runner beans
- Water
- Stapler

## Key words

Seed, grow, sprout, water, sun, air

## Exploring the outdoors

# Watch seeds grow



### What to do

1. Soak the beans in a glass of cold water the day before.
2. Cut some dish cloths to fit inside the snap lock bags.
3. Staple the dish cloth to the bag, leaving a few centimetres at the bottom for the roots to grow.
4. Add some water to the dish cloth to keep it moist. Then put a few beans in the bag.
5. Seal the bag and hang it near a sunny window. Watch the beans grow!
6. When the seedlings have leaves, they will need air to keep growing. Plant each seedling in a small pot of soil and then transfer to a larger pot or plant in the garden when they grow bigger.

### Things to think about

The children can consider:

- What does a plant need to grow?
- How long do you think it will take for the seed sprout?

### Extra things to do

Your children could draw pictures every few days to track the growth of the seed.

Find more activities here  
[www.okido.co.uk/schools](http://www.okido.co.uk/schools)

## Watch out!

Don't eat the sprouts as the seeds may be pre-treated with chemicals.



## About this activity

This activity helps children to understand the properties of water and that it can freeze and melt.

In this activity, children handle a foil-wrapped object and they are encouraged to think about what might be inside.

When it is opened, they find a small figure trapped inside a block of ice! How can they help it escape its icy prison?

## Kit list

- Yoghurt pot or small freezable container
- A figurine, e.g. Lego person
- Water
- A freezer
- Foil
- Other resources to release the figure, e.g. a small hammer or bowl of tepid water

## Key words

Ice, melt, freeze, thaw, water, liquid, solid

## Exploring our homes

# Escape from the ice



Millgate House Education



### What to do

1. Put a small amount of water in a yoghurt pot or similar container and add a figurine. Put this in the freezer.
2. When it is frozen, top up the water and freeze again so that the figurine will be inside the ice, not floating on the top.
3. Release the ice from its container. You might need to run the yoghurt pot under a little water to free the ice.
4. Wrap the ice in tin foil.
5. Hand out the foil parcels and ask them what they think is inside? How would they know this?
6. Have them try bang the parcel on the table, to find out if it is hard. See if it will bend and stretch.
7. How does it feel in their hands?

8. After unwrapping, discuss what the best way to get the figurine out of the ice is. Putting it in a bowl of warm water perhaps? Or maybe putting it on the windowsill? How about tapping it with a hammer?
9. Finish up by going over what they learnt, making sure to use the key vocabulary.

### Things to think about

The children can consider:

- Where do you think this water is coming from?
- Why are your hands cold and wet?
- What will make the ice melt?
- Would anything make the ice melt faster?
- How can we get the person out of the ice?

### Extra things to do

You child could draw or tell a story about how the figurine got into the ice.

## Watch out!

Take care when breaking the figurine out of the ice. If a small hammer is to be used, make sure the ice is secure to prevent it from slipping or hitting fingers.

Have a towel handy to mop up any mess.



## About this activity

Join the newest character in the Mr. Men & Little Miss series, Little Miss Inventor, on her mission to help all her friends with new and fantastical inventions.

For this activity, Little Miss Inventor wants to help Little Miss Quick make a suitable noise to signal the start of a race. But how?

By inventing a music maker, that's how!

Your children will be exploring how different levels of water make different sounds, to decide which is the best one to start Little Miss Quick's race.

## Kit list

- Several identical glass bottles
- Additional glass or pot containers of different sizes e.g. flower pots, mugs, cups, glasses or jars
- Spoons, pencils or other tappers
- Tubes with one end sealed and/or bottles with narrow necks to blow across e.g. milk or water bottles.
- Food colouring (optional)

## Exploring our homes

# Music maker

### Part one

You could start this activity by reading your students the new *Little Miss Inventor* book to be released during British Science Week.

They can then explore what happens when you change the amount of liquid in a bottle. The children will need several bottles all of the same size and should tap them gently with a spoon.

### Part two

Give them other things to explore, e.g. different sized glass bottles, jars, glasses, teapots, mugs or clay plant pots.

### Part three

Have the children decide which is the best sound for starting a race. You could go outside and test it!

### Things to think about

Try filling a few similar sized bottles with different amounts of water and then encourage children to put the sounds in order from low to high notes.

### Extra things to do

Try blowing across the top of the bottles. Try tapping other things like sticks, bowls, cups, glasses and flower pots. See what else you can do to make a musical sound.

Visit [www.egmont.co.uk/blog/little-miss-inventor-joins-mr-men-little-misses](http://www.egmont.co.uk/blog/little-miss-inventor-joins-mr-men-little-misses) for more information about the Little Miss Inventor book.

## Watch out!

Care needs to be taken when using glass. Check your organisation's policy for using glass. Clear up water spills and breakages quickly. Encourage children to tap gently.

Empty and clean all containers thoroughly before use.



Exploring the world

# Ocean in a bottle with Mister Seahorse



## About this activity

This activity is for children to learn about the creatures of the sea, how oil and water interact, and how to make waves.

In this activity, children will make their own 'ocean in a bottle' habitat for Mister Seahorse.

## Kit list

- Empty bottle with lid
- Clear vegetable oil
- Water
- Funnel
- Blue food colouring
- Optional: sand, toy shapes, toy sea creatures, e.g. a seahorse or other creatures mentioned in the book, shells, glitter

## Key words

Wave, ocean, seahorse, oil, water, habitat, camouflage

### What to do

1. You could begin by reading *Mister Seahorse* by Eric Carle to your class and then describe that they'll be making a habitat (home) for the characters of the book.
2. Wash and dry the two-litre bottle and remove all labels.
3. Fill the bottle halfway with tap water.
4. Add a few drops of blue food colouring and swirl around to mix.
5. Add glitter and sea creatures if you're using them.
6. Fill the bottle the rest of the way with vegetable oil using a funnel.
7. Seal the cap.

Look how Mister Seahorse tumbles and turns in the water in the book. Turn the bottle on its side and gently rock it to create a wave inside your ocean habitat.

### Things to think about

The children can consider:

- Look closely, what can you see in the bottle?
- Can you see all the creatures or are they camouflaged (hidden)?
- Can you make waves in your bottle?
- What happens when you try to mix the oil and water?
- What do you think will happen when you leave the bottle still?

### Extra things to do

Your children could act out the journey of Mister Seahorse, meeting all his friends along the way.

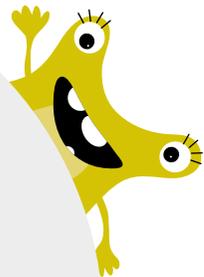
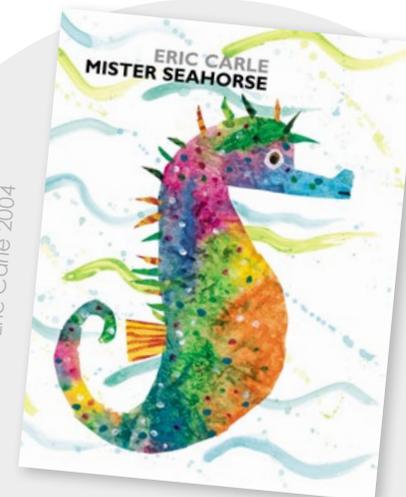
## Watch out!

Take care pouring the water and oil into the bottle.

Have a towel handy to mop up any mess.

Make sure the lid is on tight before shaking it.

copyright © Eric Carle 2004



## About this activity

This activity aims to get children to understand how bubbles are made and what ingredients go into a giant bubble mixture.

## Kit list

- 6 cups of water
- 1/2 cup of washing up liquid
- 1/2 cup of cornflour
- 1 tablespoon of baking powder
- 1 tablespoon of glycerine
- Materials to make bubble wands, e.g. string, sticks, straws, hoops

## Key words

Bubble, mixture, giant, rainbow

## Exploring the world

# Giant bubbles



### What to do

1. Dissolve the cornflour in the water, stirring well, then gently stir in the remaining ingredients. Avoid creating too much froth. Allow your mixture to sit for at least an hour, stirring occasionally if you see the cornflour settling to the bottom.
2. Support your children to do all the mixing and measuring.
3. Whilst the mixture is settling, make your bubble wands. You can do this in a few ways; first, feed string through the drinking straws and tie to make a circle. The straws can act as handles when you dip it in the solution. Next, try tying string or wool to a stick, one end at the top of the stick, the other about half way down.
4. Finally, you can create varying sizes of hoops.
5. Now, go outside and make giant bubbles! The first few out of the solution may pop, but persist; they will start to get stronger and stronger. The best days to do this are slightly sunny with little breeze.

### Things to think about

The children can consider:

- How are bubbles made?
  - What goes into bubble mixture?
  - How do I make the biggest bubble?
  - Can you see the rainbow colours in the bubbles?
  - Which bubble wand makes the best bubbles?
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### Extra things to do

You could try adding colouring to the mixture or experimenting with different items that could be used as wands.

## Watch out!

Do not swallow the mixture.

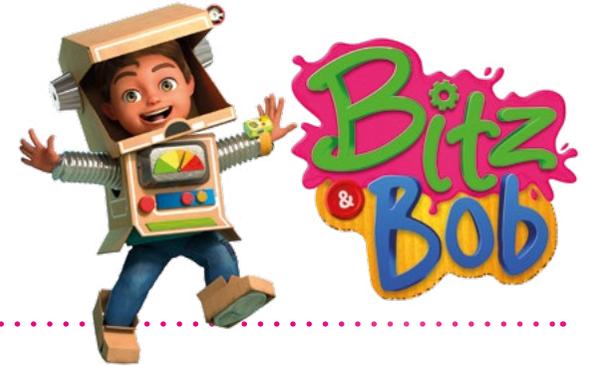
Mop up any spills quickly.



Exploring the world

# Rocket rescue

## Save the day



### About this activity

Bitz is an 8-year old female engineer who loves exploring, making and inventing with her brother Bob. They make amazing creations and have epic adventures, however, sometimes there are surprises, so Bitz and Bob must solve problems as a team. Engineers work in teams, using their knowledge to design, build and test, solving problems to help the world around them.

In this activity, your children must imagine their favourite toy is stuck on a lost planet and they must rescue them using a rocket! They will design, make and test a rocket to 'invent a way to save the day!'

### Kit list

- Selection of empty water bottles without lids
- A4 paper
- Sticky tape
- Child-friendly scissors
- Large piece of card
- Pens and coloured crayons
- Toy figure to be rescued
- An extra pair of hands!



### What to do

1. Draw a planet on the card. Add numbered circles to make a target. Place a toy to be rescued in the centre. Get engineering!
2. Roll up small bits of paper. Point the bottle opening at them and squeeze. The air coming out pushes the paper balls. What happens with a larger bottle or if you squeeze softly?
3. Cut a strip of paper, roll it into a tube and tape up the edge. Stick a cone or a paper ball on one end. Put the other end over the bottle and squeeze. What happened? What would help it fly better?

4. Decorate your rocket, add wings or draw yourself on as the pilot. Stand back and 3-2-1 launch! Did you rescue your toy? Try to make changes to improve it, then test again.

### Key words

Rocket, engineering, planet, rescue, push, forces

### Things to think about

- What happens to the rocket when you squeeze the bottle?
- What makes the rocket move?
- How can you make your rocket fly further?
- How could you improve your rocket?

### Extra things to do

Bitz & Bob is a pioneering, stand out new pre-school series, exploring the principles of science and of engineering through creative play, crafting and invention. Tune in to CBeebies.

### Watch out!

Take care cutting the paper strips with the scissors.

Remove the lids from the water bottles and recycle them as they are a choking hazard.

Do not shoot your rockets towards anyone.



## About this activity

Get creative and enter the British Science Association's annual poster competition. Your children can make their poster about whatever type of exploration or discovery they like, and enter our UK-wide competition with the chance to win an array of prizes.

## Kit list

- Paper (A4 or A3)
- Creative materials, e.g. pens, pencils, scissors, glue, watercolours, paint, colouring crayons, glitter, pipe cleaners, felt, thread, wool, foil, clay, straws, string, beads, stamps, googly eyes, foam, sequins, pom poms

# Poster competition

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## What to do

### Plan your poster

- Ask your children about exploration and discovery
- Explore ideas such as:
  - Exploring your back yard
  - Discovering something you didn't know
  - Exploring the science in our everyday lives.

### Make your poster

- It's time to get creative!
- The poster must be:
  - 2D (flat) – if you make a model, you need to just send us a photo of it
  - On A4 or A3 paper
- They can use materials such as paint, drawing pencils, crayons and paper.

### Send us your poster

- Posters will be judged on how creative and how well the poster has been made or drawn. Once the poster is complete, write your children's information on the back, fill in the online registration form, and then post their entries to us.

## Extra things to do

For more details, along with the full set of rules and tips for educators, check out our website [www.britishscienceweek.org/plan-your-activities/poster-competition/](http://www.britishscienceweek.org/plan-your-activities/poster-competition/)





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

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