COMMUNITY GROUPS RESOURCE PACK

OUTDOOR ACTIVITIES

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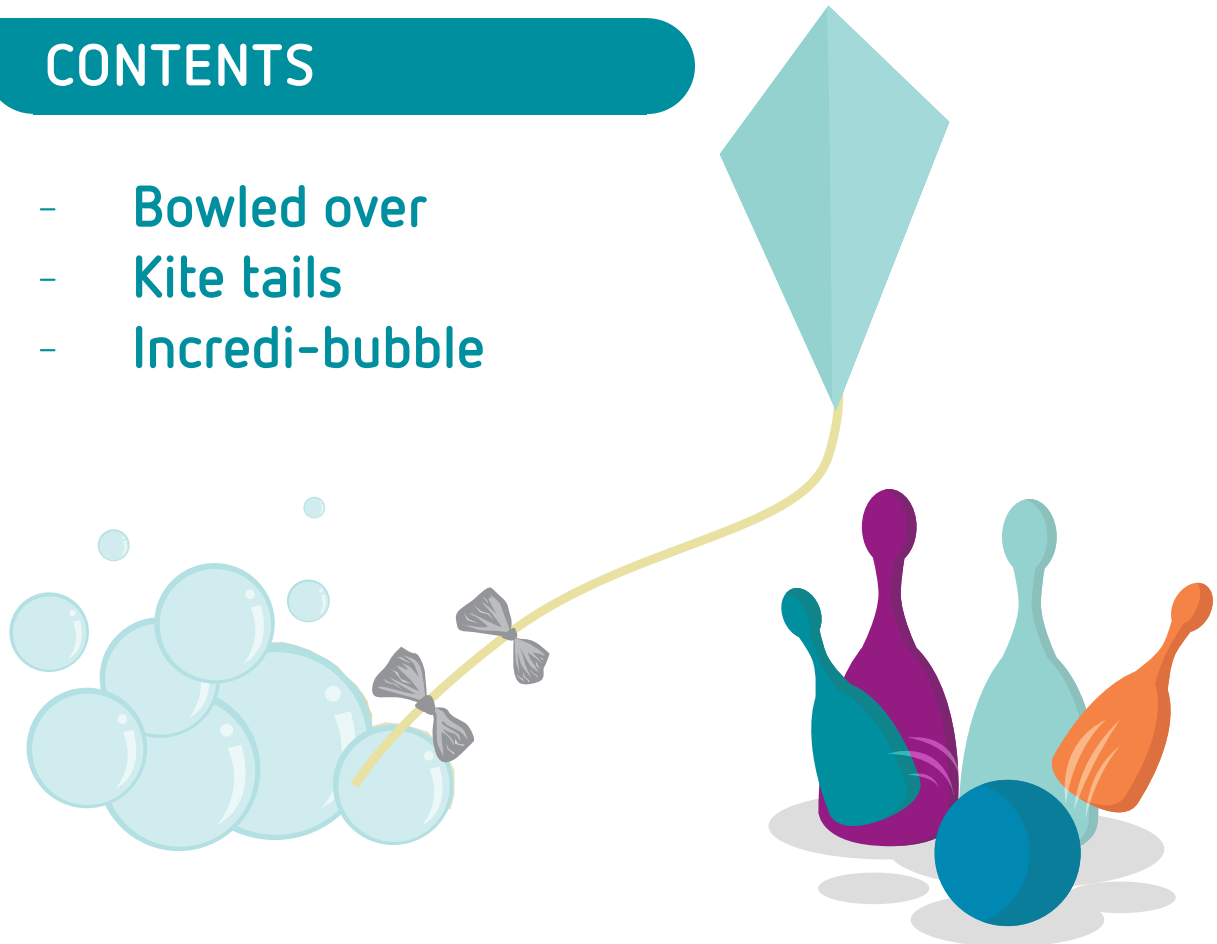
This resource pack contains a selection of activities that have been designed for any audience interested in exploring science. Whether you are new to science, a regular pro, or just looking for something to try on the weekend, these activities can be completed as a family, with a group of friends or as individuals. You can do them at community events, clubs, and even from the comfort of your own home.

If you want to try these activities out on members of your community, take a look at our diverse range of volunteering opportunities. You don't have to be a scientist to volunteer with us, to find out more visit:
http://bsa.sc/volunteer-BSA

CONTENTS



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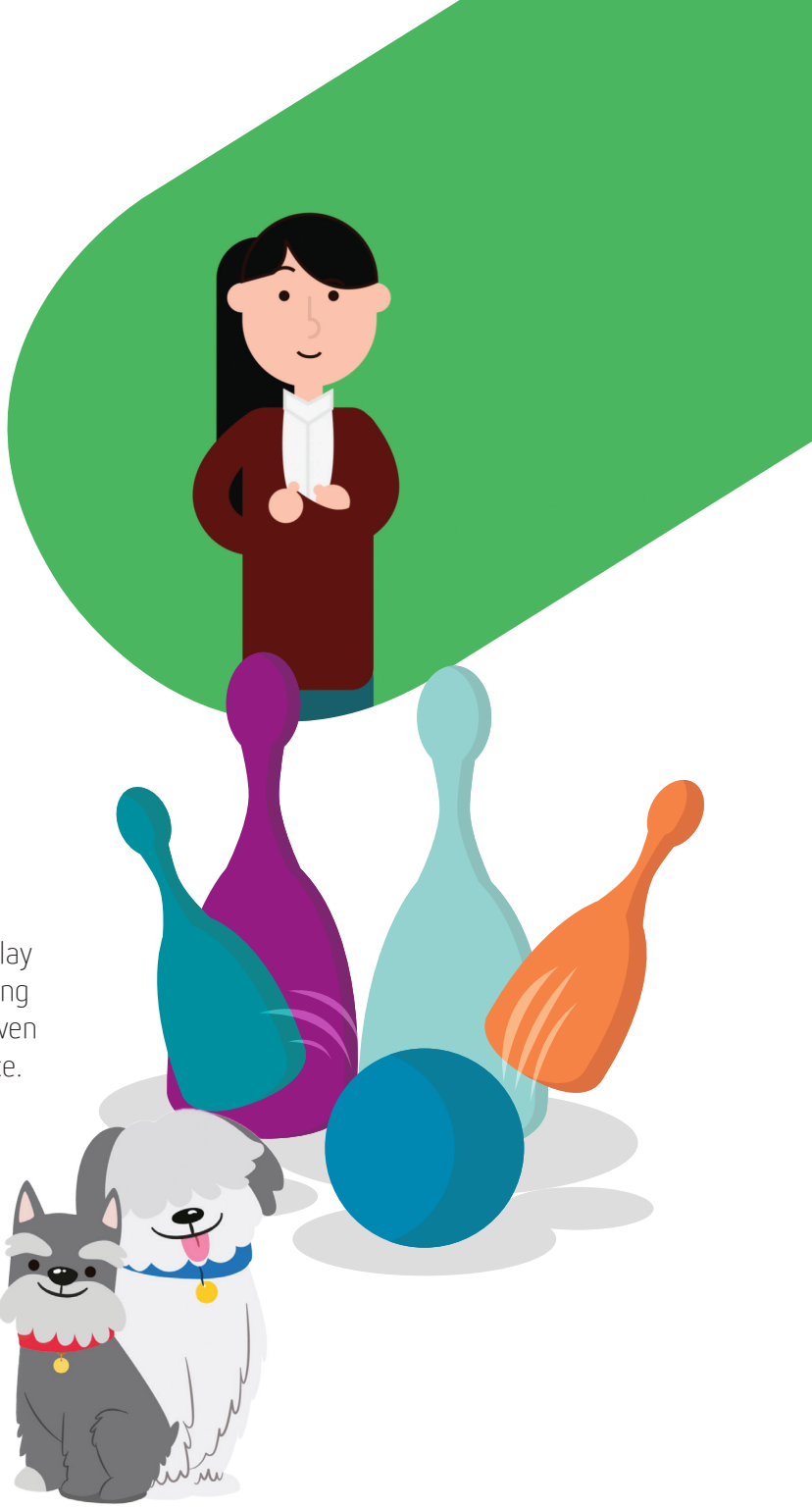
Bowled over



TIME - half a day

ABOUT THIS ACTIVITY

Make use of your garden or local park by designing and making a version of ten-pin bowling you can play outside. Investigate how to make appropriate bowling pins and experiment with different balls. You can even make up new rules for playing on a different surface.

WHAT YOU NEED

- Containers of different sizes and shapes
- Different fillings, e.g. gravel, sand, water
- Different outside surfaces
- A selection of balls

WHAT TO DO

1. Before starting, talk together about ten-pin bowling so everyone understands the game and can then discuss the best designs for an outdoor version.
2. Bowling alleys are usually smooth. You may have different outdoor surfaces to choose from, so think about how the game would change when played on tarmac, a mown lawn or long grass.
3. Test your bowling pins by experimenting with different types of pins. Try making them out of kitchen roll inserts or cylinder containers, then using different fillings to give them weight and balance. You may have other ideas on how to make pins that are like ones at a bowling alley. Record how different shapes, weights and fillings fall and decide which ones are suitable for the game.
4. You don't want your game to be too simple or too difficult, so investigate which ball to use, which distance is best and how to arrange the pins. You can test how many pins are knocked over in 10 throws to compare different arrangements.
5. Make a table to record your results and then decide together the best arrangement for the most fun game.

GET EVERYONE INVOLVED

YOUNGER ONES You can search for suitable materials to make the bowling pins. Your help will be needed to reset the pins and collect the balls for each test.

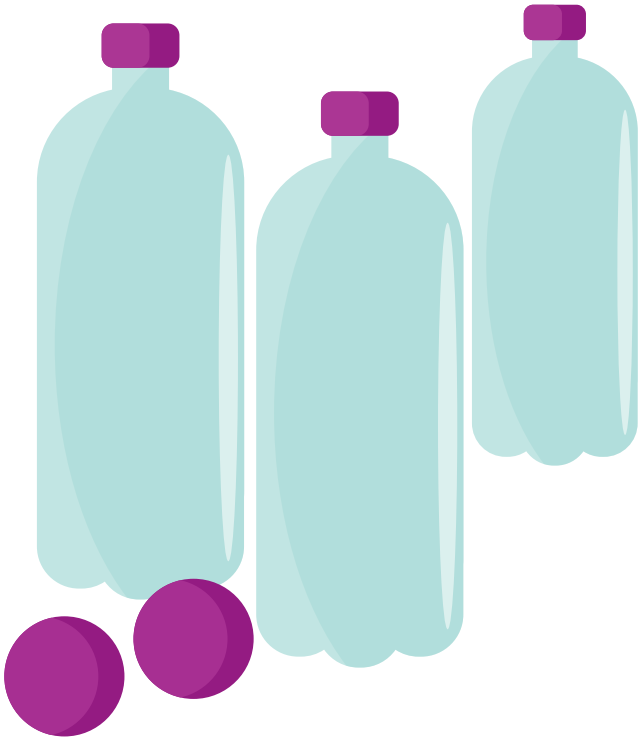
OLDER CHILDREN There are a few factors you can change, so you will need to plan how to test your ideas. You could take photographs or make drawings to present what you found out.

ADULTS Support everyone to conduct their tests and make their own records of results. Encourage discussion on how the different variables, e.g. playing surface, shape, weight, filling, ball, might affect the game.

GO FURTHER

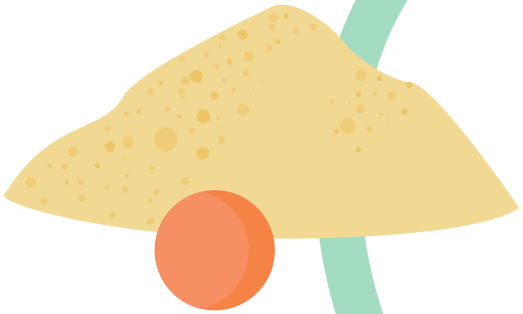
You can paint your bottles and balls to create a colourful bowling set you can take to the park. Try bright coloured faces or other fun looks.

Think about other games you could give an outdoor make-over to, e.g. Giant Jenga™, Lawn Scrabble™, a DIY ring toss or bean bag toss - you can prepare for a summer of fun with your friends.



HEALTH AND SAFETY

- **Ensure the outdoor environment is safe and clean.**
- **Don't use equipment that is sharp or will break easily, such as tin cans or glass bottles.**



DID YOU KNOW?

A bowling lane is 18.2 meters long. Bowling balls are made from polyester or plastic and weight between 2.7 and 7.3 Kg.

A bowling game consists of 10 sets of two rolls. Each pin knocked down is one point. Toppling all pins with the first ball is a strike and scores 10 points, plus the total of two more rolls. Toppling all pins with two rolls is called a spare and scores 10 points plus one more roll.

Bowling is the number one participation sport in America.

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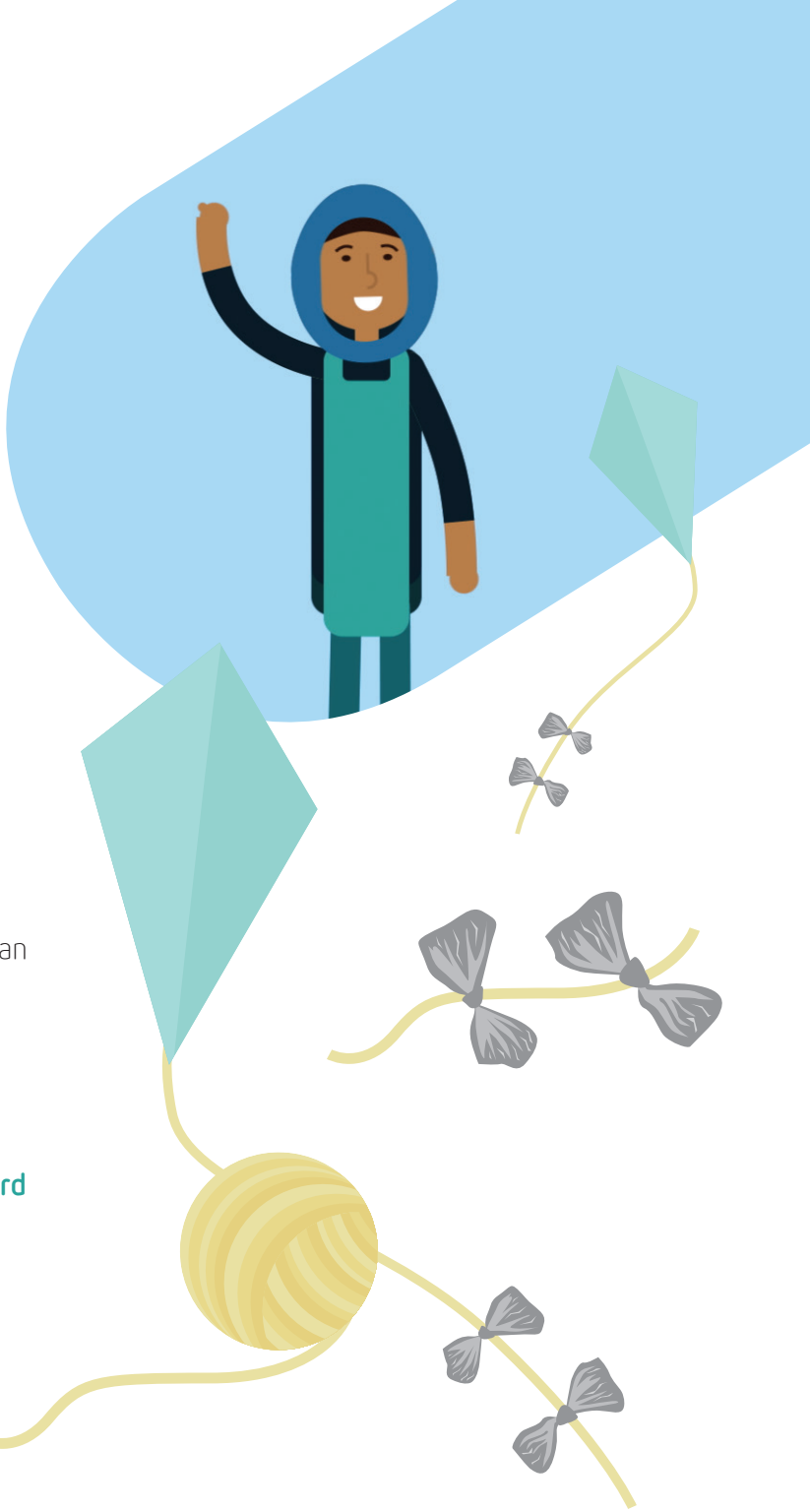
Kite tails

TIME - up to 1 day



ABOUT THIS ACTIVITY

Taking a kite out on a windy day can be lots of fun, but even more special when you make your own. Your challenge is to design and build a kite that will fly. You can start by planning your design on paper, then making and testing a small model. Next, you can explore new kite shapes and sizes.

WHAT YOU NEED

- Kite materials, e.g. sheets of paper, tissue, card
- Tail - long strips of tissue or ribbon
- Foil - to make bows to add weight to the tail
- Frame - cocktail sticks, wooden skewers
- Flying line - strong cotton thread, string or fishing line
- Scissors, glue stick and Sellotape

WHAT TO DO

1. Your kite is made of different parts, including the support frame, cover, tail and the flying line. You will need 2 wooden skewers to make the frame.
2. Cut out the cover from card or paper.
3. Glue the skewers onto the cover, secure with Sellotape.
4. Tie your flying line where the sticks cross.
5. The shape of a kite changes the way the wind flows around it and how it flies. The tail adds stability and balance, so fasten your tail at the bottom and add aluminium foil bows.
6. Now you can test tail length and position of the bows. Kites fly better when it is a bit windy. Many difficulties result from material that is too heavy or from not getting the kite symmetrical.

GET EVERYONE INVOLVED

YOUNGER ONES You can be the test pilots. Report back on how well the kites fly and what problems you have.

OLDER CHILDREN You can plan and build the kites. Discuss what improvements could be made, then return to make your changes. Decide the best way to test your designs. You could try outside or use an electric fan.

ADULTS You should be able to share your problem-solving skills and experience for launching and mending kites. Supervise children if they are testing kites.

GO FURTHER

To make a perfect kite, research how they fly. This will help improve your design and solve problems, such as your kite spinning in circles or flying to one side.

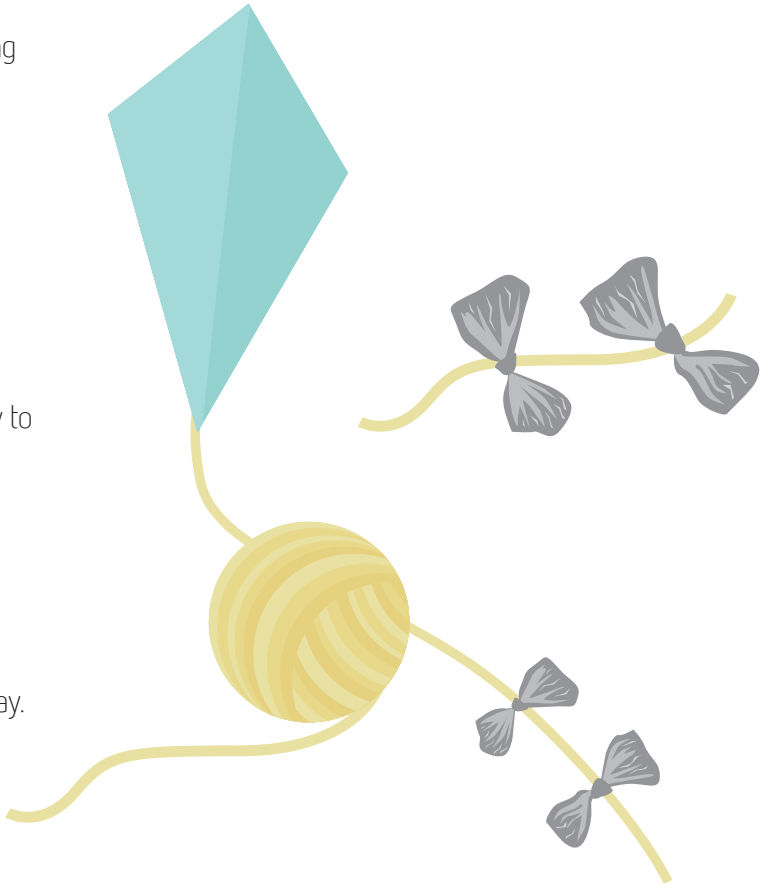
Find out about other styles and shapes of kites and try to make them.

If you have perfected a kite template, get creative with artwork on your kite, maybe try dragons, tigers or butterflies.

You can make a display for your kites showing which ones didn't work and the changes you made on the way.

HEALTH AND SAFETY

- **Watch out for people, roads, power lines, obstructions and sunburn when flying your kite outdoors.**
- **You may wish to cut the points off the wooden skewers.**



DID YOU KNOW?

The fastest recorded speed of a kite is 193km/h. The record for the longest flight is 180 hours. The highest a kite has flown is 3801 metres.

The smallest kite in the world that actually flies is 5 mm long. The largest kite is called the Megabite and is 55 long and 22 metres wide.

The airplane is a development of the kite.

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Incredi-bubble

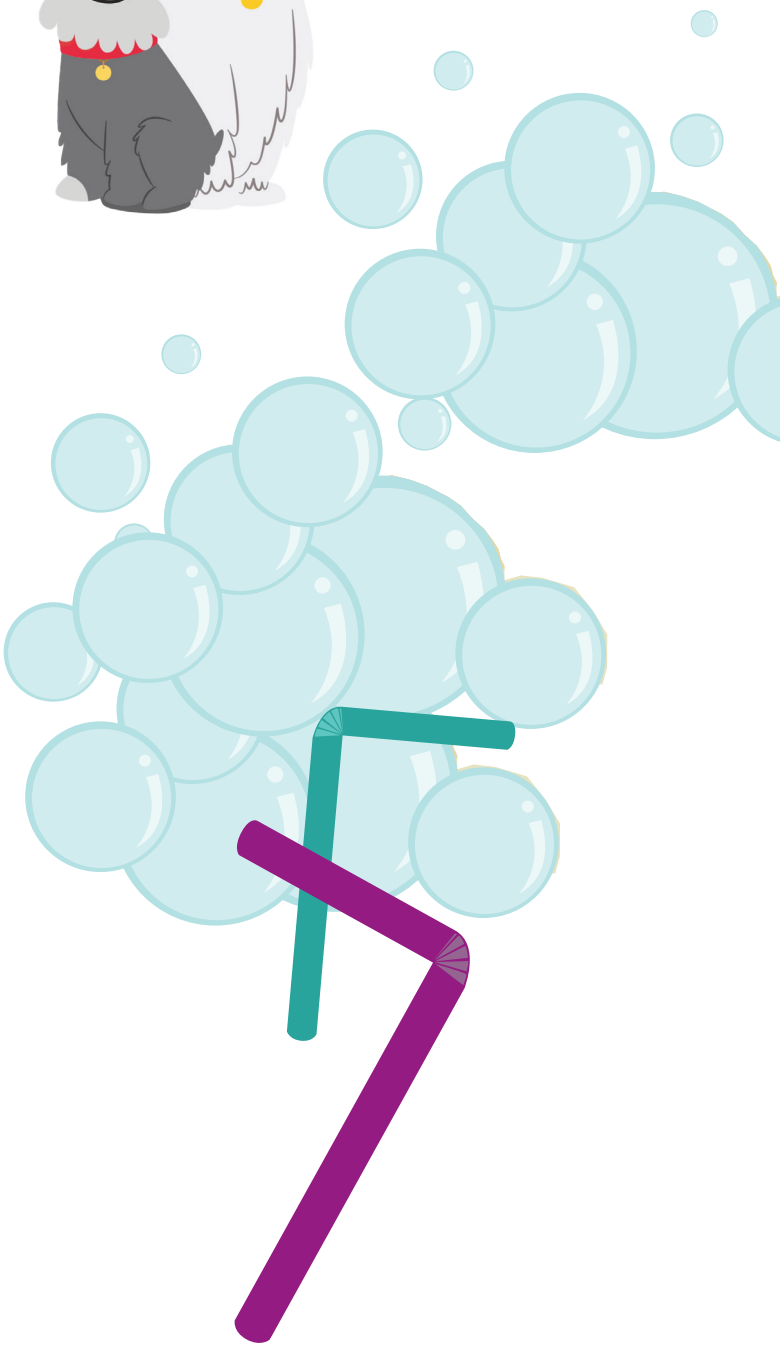
TIME - a couple of hours

ABOUT THIS ACTIVITY

If you don't mind getting a little soapy, you can blow your own unique bubbles in this activity. Use bought bubble mixture or try our simple recipe. Enthusiasts can compare different bubble solutions to make incredi-bubbles.

WHAT YOU NEED

- Bowls
- Clean drinking straws - 1 per person
- Bubble wands, soft wire or pipe cleaners
- Bubble solution - purchased, or make one by mixing ½ cup dishwashing liquid, 2 cups water and 2 teaspoons of sugar



WHAT TO DO

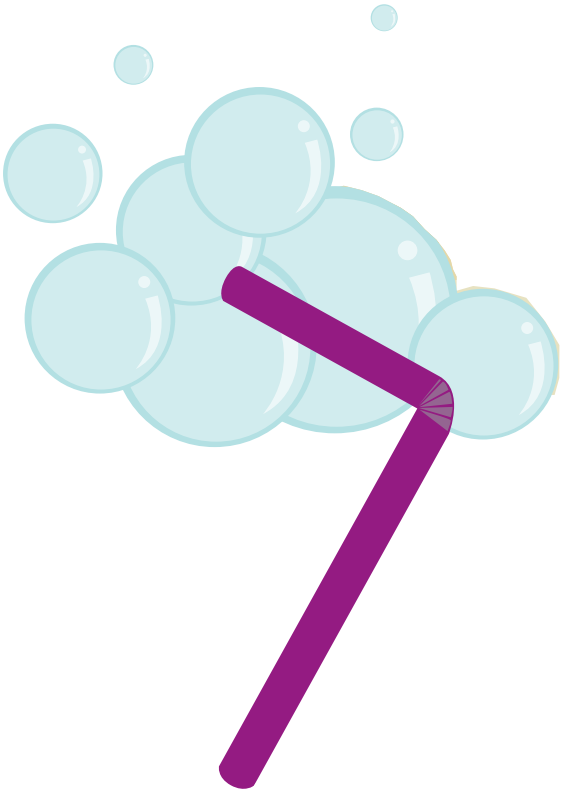
1. Put some bubble liquid in a bowl or tray. Bought is more reliable but you can have fun making your own.
2. Start by dipping the end of a straw in the liquid and lift it out. Now, blow down your straw to make a bubble. **Remember not to share straws**.
3. Start by blowing gently and then gradually blow harder. Notice how the bubbles change.
4. Try different bubble wands and wire frames to create your own unique bubble and capture a snapshot as evidence!

GET EVERYONE INVOLVED

YOUNGER ONES You can find out whether bubbles float or fall. See how many bubbles you can blow, chase and catch. Try catching bubbles with wet and dry hands to see if there is a difference. Make a game of avoiding bubbles blown at you by others.

OLDER CHILDREN Test different bubble solution recipes to find out which works best. Make inventive bubble wands by bending wire frames into different shapes. Discuss what else you could do to blow new bubble shapes and sizes. Test your ideas and record which methods worked well and why.

ADULTS You can add food colouring to the mixture and decide who blows these special bubbles. Careful, because when these burst everyone can get sprayed with food colouring- this can get VERY messy!
Try making your own bubble competitions.
Who can make the biggest, longest or weirdest shape? Who can keep a bubble longest in the air?



GO FURTHER

Find out how bubbles have inspired buildings.

Research the architecture of the Eden Project and the Beijing Olympic swimming pool.

Find out how some insects can skate on water and explain how this is related to bubbles.

HEALTH AND SAFETY

- **Children need to be careful if using wire.**
- **Clean up spills quickly to avoid slips.**
- **Don't suck on the straw or drink the bubble mixture**

DID YOU KNOW?

Water acts as though it has a stretchy skin. It's this that makes the round bubble shape. Scientists call this surface tension.

The colour of bubbles is due to light reflecting off the surface and creating what scientists call interference patterns. The pattern and colour changes according to the direction of light and the thickness of the bubble.

The biggest bubble ever blown was 50ft long and 2ft in diameter. The longest bubble was 105ft long.

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