Primary Science & Technology Bulletin

Ideas and Inspiration for teachers in Primary Schools & S1 / S2

Bulletin Number 44

ISSN 1775-5698

• Holidays • Special Science Days • Travel • Sea and Sand • Picnics • Foods • Growing Foods • Weather • Global Warming • Climate Change and the End of the Package Holiday • Sun Tans and Sunscreens • Visits to Zoos and Gardens • Summer Fun •

Word Bank for Talking about Summer Science

Write down as many words as you can, either individually or in a group, that have something to do with *summer*. Take each word and think about some aspect of science in each of the words chosen. The word bank may help to give you some ideas.

Construct a poster with illustrations of the class's summer science ideas.

Scottish Science in the News

Dundee University is collaborating with a consortium of six of the World's leading pharmaceutical companies in one of the largest-ever industrial research deals worth $24 Million. Research is wide ranging but will focus on cancer, infectious diseases and diabetes. Scotland has a world class reputation for its diabetes research with Dundee University having a specialised 5* rated unit and some of the finest researchers in the world. Find out about diabetes, its link with obesity and the increasing concern about poor health and lifestyle in Scotland today. Even our pets are being diagnosed with diabetes. Have a look at these websites:

http://www.telegraph.co.uk/news/uknews/1559641/Britain's-fat-cats-face-obesity-crisis.html
http://news.bbc.co.uk/1/hi/health/4686611.stm

The Let's talk resource on Diet Diabetes and Obesity is discussed elsewhere in this bulletin. Please see page 7.

Bat Techniques could find Tumours

http://news.bbc.co.uk/2/hi/uk_news/scotland/glasgow_and_west/7089820.stm

Scientists in Scotland hope to mimic bat radar to locate and identify tumours hidden deep inside the body

The University of Strathclyde team are developing a diagnostic device that employs the same technique used by some animals to recognise objects.

Bats navigate and hunt insect prey by sending out pulses of sound and listening to the reflected echoes.

The team is looking at using the same principle to identify hidden tumours with ultrasound.

According to a report in The Engineer magazine- http://www.theengineer.co.uk/Articles/302799/Animal+magic.htm the research is based on the way that bats, like dolphins and whales, have a sophisticated ability to tailor their ultrasound signals to individual targets.

These "acoustic codes" are used to identify different kinds of objects.

A bat, for instance, might send out an ultrasound squeak that is specifically coded for prey. Its echo tells the bat it has detected a flying insect, rather than a falling leaf.

Professor Gordon Hayward, who is heading the research, said: "Bats, dolphins and whales use complex acoustic waveforms for object identification and navigation."

His team of engineers are working with mathematicians to come up with acoustic codes for a wide variety of targets, including cancer cells.

The researchers hope to complete their work in the next three years.

The system could also have military applications, such as the detection and removal of underwater mines.

"With improved image capability, you could envisage a mine hunter locating a mine, then classifying it and sending a small robotic vehicle to dispose of it," Prof Hayward said.

The team is working with US researchers from the Universities of Virginia and Southern California, where ultrasound has already been used to create images at the cellular level.

Topical Science **First**

I have contributed to a class display of current scientific news items to help me develop an awareness of topical science

SCN 116BB

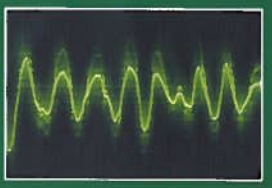
Topical Science **Second**

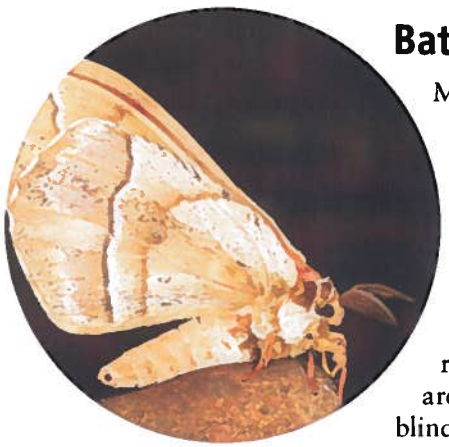
I can report and comment on a current scientific news item to develop my awareness of topical science

SCN 236BB

Life and Cells: Using my Senses

Here are two activities exploring bat echolocation (sonar) and bat scent.





Bat and Moth Activity

Form a large circle with a group of pupils and choose one of the pupils to be the bat. They should stand in the middle of the circle and put a blindfold on.

Choose another 3-5 pupils to be moths. When the moths enter the circle the bat must try to catch them. Whenever the bat calls out 'moth' the moths must reply 'bat'. Explain to the group that every time the bat calls out 'moth' it represents their sonar signal hitting their prey; the bat sends out this signal to see if there is anything there, the signal bounces off objects and is returned. The return signal is the cry 'bat'. When the moths call out 'bat' the bat knows they are near and tries to catch them to eat for supper! The bat tracks down the whereabouts of the moth by listening carefully to where the replies are coming from. It takes good concentration to be a successful bat!

The remaining pupils in the circle act as a buffer to stop the bat from tripping over or banging into anything. The moths and bat must stay within the circle.

The activity can be made more challenging by restricting the movements of the bat and moth, i.e. the bat can take two steps after it's made its call and the moths can take one.

Bat Scent Activity

Mother bats will leave their young hanging in a colony of many baby bats. When they come back, one of the ways they identify their young is by using their sense of smell.

Ahead of the activity the teacher should have film containers, one for every pupil. The film containers should contain pieces of card that have been coloured with scented markers. Make sure to recolour the pieces ahead of time. Make sure there are two containers of each scent. There needs to be one blindfold for every 'Mother bat'.

Pupils should choose a partner and decide who will be the Mother and who will be the Baby. The parent and baby bats will choose a pair of containers containing the same scent.

The Baby bats sit in a circle and the Mother bats form a circle on the outside, around the Baby bats.

The Mother bats then put on the bat blindfold mask.

The Mothers must locate their baby by finding the same scent container.

An interesting extension activity can be found at:
http://www.seeingwithsound.com/winvoice.htm

The vOICe Learning Edition translates arbitrary video images from a regular PC camera into sounds. This means that you can see with your ears, whenever you want to. With a notebook PC or UMPC you can even go mobile. How ***well*** you can learn to see with your ears is something that only ***you*** can find out, but now you can indeed find out and learn through this Learning Edition software, for free! It is hoped that seeing with sound will not only find many practical uses, but that extensive usage may also lead to visual experiences that truly have the distinctive subjective "feel" of vision. This, however, remains to be established through the reports of blind users.

For more information about bats visit:

www.bats.org.uk
http://www.bbc.co.uk/wales/southwest/nature/species/pages/pipistrelle.shtml
http://www.jwaller.co.uk/batgroup/pipistrelle.asp
http://www.batdetective.com/
http://www.snh.org.uk/wildlifecrimeschools/documents/Bats%20Leaflet.pdf

Using My Senses **Early**

Using my senses

I am becoming more aware of my own senses and can use them to explore the world around me

SCN 010S

Using My Senses **First**

Through a range of activities I have explored my senses and can discuss their reliablity

SCN 113S

What's on at the Science Centres?

Glasgow Science Centre:

http://www.glasgowsciencecentre.org/education_1.aspx

In June there were several activities, workshops and shows for Primary pupils. Details of these shows and workshops are available on the website and include, in the Science Show Theatre, an Eco show, Flash Bang Wallop, Blood Bile and Bodybits. Workshops will include Soldering Circuits, Getting Your Teeth into This, and a 'Who Dunnit?' Early years can explore Minibeasts and at the IMAX there are Rainforest Adventures, Deep Sea, and Space Station features to thrill the young visitors. In June the Science Show Theatre will also show Fantastic Forces. The workshops will explore a new forensic activity called 'It Wasnae Me'. There will also be the opportunity to construct a crazy car. For the Early Years, Pirates will feature and also Star Hunters. The Glasgow Science centre also has a collection of posters and activities available for download at:

http://www.glasgowsciencecentre.org/sciencetopic1.aspx

Remember, teachers and their families can visit the Science Centre for free when they are planning future school trips. See the Glasgow Science Centre website for details.

Our Dynamic Earth, Edinburgh:

Programme always available at:

http://www.dynamicearth.co.uk/index.asp?cat=Education

Two posters, one on Climate Change and the other on the Solar System are available to download from Our Dynamic Earth at:
http://www.dynamicearth.co.uk/documentsClimate%20Poster.pdf
http://www.dynamicearth.co.ukdocumentsSolar%20Poster.pdf

Sensations, Dundee:

www.sensation.org.uk/index.php?sw=0

Science posters and teaching resources are available at:

http://www.sensation.org.uk/downloads.php

Sensations education programme, covers many topic areas and is available at all times. Pupils will be given the chance to extract their own DNA, solder a circuit board, tour the solar system, explore our internal organs, make the 'perfect poo' (it's all about digestion!) and more!

Satrosphere, Aberdeen:

Magic Planet Shows / 30th June – 31st August

To complement the ***Vanishing Ice*** climate change exhibition, Satrosphere brings two specially created ***Magic Planet*** shows. ***Journey to the Poles*** tells the story of the poles including geology and wildlife. ***On Thin Ice*** uses state-of-the-art voting pads to highlight the issues surrounding climate change.

What can we Learn from growing Plants?

Some Recommended Seeds to Grow with Primary Pupils

Runner beans, water well in dry weather, otherwise the plants will not produce beans.
Radish, a great starter vegetable because as well as being easy to grow, the colourful roots are ready for eating within a month of sowing.
Sweet pea, sow seeds outdoors in March or April for blooms in June and July. Pick the flowers regularly to encourage more growth.
Pot marigold, plant a pinch of seeds in March or September and you will be rewarded with a mass of flowers in about 10 weeks. The petals can be eaten in salads!
Lettuce, can be grown all-year-round; simply choose from the many varieties to ensure you have a crop for every season. Seeds, once sown, should begin to sprout within 12 days.
Nasturtium, sow seeds in pots in spring, then make a colourful salad from the beautiful, peppery orange, red or yellow flowers.
Cosmos, in mild weather seeds can be sown outdoors in May. Produces ferny foliage and large brightly coloured flowers. Likes a sunny position.
Cornflower, plant seeds in September or April where you want them to flower. This beautiful flower, surprisingly, used to be a weed!
Tobacco plant, plant seeds indoors and plant out when the danger of frost is past. Flowers give off a wonderful scent during the evening, from June to October. Don't worry; you won't be producing any tobacco!

Potatoes – not really seeds but tubers. Note that the leaves and stems and any potatoes that have turned green are poisonous.

Sunflowers – one of the easiest and most dramatic seeds to grow!

Safety Code for using plants (p28 of *Be Safe!*)

Teach children to avoid touching their eyes whilst handling plants
Teach children never to taste any part of a plant unless absolutely certain that it is safe to do so
Warn children especially about attractive-looking fruits and seeds, that look edible but might be poisonous
Check whether seeds have been dressed with pesticides
Always wash hands after handling plants or seeds
Consider the need for wearing gloves
Consider the likelihood of contamination of soil samples

Biodiversity **First**

I can help design experiments to find out what plants need in order to grow and develop. I can observe and record my findings and from what I have learned I can grow healthy plants at school

SCN 103B

Here are some good websites for exploring and growing seeds with Primary pupils.

http://www.bbsrc.ac.uk/society/schools/primary/easy_peasy/seed.pdf

http://www.plantations.cornell.edu/education/jday/lesson_plan.pdf?bcsi_scan_8375741C86C3A424=0&bcsi_scan_filename=lesson_plan.pdf

http://www-saps.plantsci.cam.ac.uk/docs/p4pp/lp/snipcuttings.pdf?bcsi_scan_8375741C86C3A424=0&bcsi_scan_filename=snipcuttings.pdf

http://www.kew.org/education/breathing-places.pdf

http://www.sustainweb.org/g5ap/idea10.php

A Class Project on Sprouting Seeds

This activity is suitable for those pupils at Level Two, Primary 5 to 7, and older. Pupils could investigate and determine the ideal conditions for sprouting seeds. They could experiment with different growing media – water, vermiculite or compost soil, and different sunlight conditions – direct sunlight or shade.

Method:

- Label the four tin trays and jars with the specific type of seed that will be placed in each.
- Tape the various seeds onto a sheet of paper and label each type.
- Photograph the seed chart to use in documenting the project.
- Divide pupils into two groups, giving each group two different types of seeds. Photograph each group as they undertake the different steps of the activity.
- Help them in measuring three spoons of seeds and in placing them in separate tin trays.
- Put the seeds in a sieve and rinse with water before placing them in their labelled jars.
- Cover the rinsed seeds with a few centimetres of clean water, and let them soak overnight.
- The next morning strain the seeds by using rubber bands to fasten sheets of muslin over the openings of the jars.
- Place the jars upside down in the trays so that they will drain.

Materials:

♣ alfalfa ♣ mustard ♣ cress ♣ radish seeds ♣
♣ clean water ♣ large plastic teaspoons ♣
♣ 4 large tin trays ♣ 4 to 9 jars ♣ muslin ♣
♣ sieve ♣ elastic bands ♣ camera ♣

- Keep the jars in an area where they cannot be easily tipped over.
- Later in the day, ask pupils to repeat the rinsing.
- Repeat these steps for four more days.
- Use a calendar to mark off the days and record observations about the sprouts.
- Once the sprouts grow, encourage pupils to observe their differences and similarities. They could draw and photograph the sprouts.
- Send home a copy of the sprout activity so that families can sprout seeds at home.

Healthy Eating and the Obesity Crisis

With the increasing levels of obesity in the UK and other developed countries there has been more interest shown in looking at changes to diet and other strategies to try to prevent weight gain. Research appears to show that there are a number of dietary factors and aspects of eating behaviour that either promote or protect against obesity. One of the areas that appear to need attention is portion size.

The following activities explore these issues. Before you look at the activities we should help clear up the issues surrounding the word 'calories'. When you look at the Nutrition Information on foods or in food magazines you will see kJ (kilojoules) and kcal (kilocalories). So to sum up:

1 kcal = 1000 calories = 1 Calorie
(Calories, with a capital C,
quoted in nutrition are 1000 calories – small c)
4.2 J = 1 calorie
4.2 kJ = 1 kcal = 1 Calorie

Here are some facts about changes in portion sizes in the United States over the years:

- Pizzas were 25 cm in diameter in the 1970s; today they're sometimes 45 cm in diameter.
- Today's Hershey chocolate bar is almost three times heavier compared to when it was first introduced.
- A bowl of cooked pasta in 1960 was 170 g; today it's approximately 330 g.
- Between 1984 and 1987, the chocolate chip cookie recipe on the Nestle chocolate chip bag changed the number of cookies made per batch from 100 to 60, but didn't actually change the recipe.
- In 2004, Carl's Junior made the "Double $6 Burger" which is a 454 g hamburger and contains 1,400 Calories.
- Starbucks doesn't sell the 227 cm^3 drink any more, only 340 cm^3, 455 cm^3, and 568 cm^3 sizes.
- Even Weight Watchers and Lean Cuisine, companies that specifically target people trying to cut Calories, have increased their portion sizes in their frozen foods by about 100 Calories.

Draft Experiences and Outcomes from CfE	Level	Outcome
Our Living World – Life and Cells – Keeping my body healthy	**Early**	**SCN 009M**
Through my daily routine and play I am developing an understanding of how to keep my body healthy, its different parts and the changes that will occur as I grow		
Our Living World – Energy in the Environment – Energy in Food	**Early**	**SCN 005H**
I have had the opportunity to taste and enjoy a range of healthy foods and can talk about how I need food to help me grow		
Having researched common problems relating to bones, muscles, eyes and ears, I can make informed decisions to allow me to maintain a healthy, active lifestyle	**2**	**SCN 225M**
Topical Science	**2**	**SCN 236BB**
I can report and comment on a current scientific news item to develop my awareness of topical science		
Health and wellbeing – Physical activity and sport		
I can describe how I feel after taking part in energetic activities and I am becoming aware of some of the changes that take place in my body	**Early**	**HWB 008K**
I can use my experience of daily physical activity to explain that the energy for activity comes form the food I eat and that healthy choices and positive experiences can protect my health and wellbeing	**1**	**HWB 111K**
Health and wellbeing – Food and Health – Nutrition		
Together we enjoy the handling, tasting, talking and learning about different foods, discovering ways in which eating and drinking may help us to grow and keep healthy	**Early**	**HWB 009L**
By investigating the range of foods available in my place of learning, I can discuss which can contribute to a healthy diet	**First**	**HWB 112L**
I am developing a sense of enjoyment and achievement when creating simple healthy foods and drinks	**First**	**HWB 113M**
I can apply knowledge and understanding of: . current healthy eating advice . how a balanced diet contributes to a healthier lifestyle . to contribute to a healthy eating plan for my place of learning	**Second**	**HWB 212L**

Working in groups of about four or five, each pupil could choose one of the facts (see page 6) and explain what effect this would have on obesity back to the group. They could look at what the increase in kilocalories might be in this bigger pizza or and how much weight would a person gain by eating *e.g.* 100 Calories extra per day, in one year? Using the Internet they could find out if the same or similar facts apply to the UK. Can the group suggest any solutions to the problems? Wikipedia provides some very interesting information on some of the favourite brands of chocolate and pupils could investigate the validity of some of the claims presented.

Lets Talk: Diet, Diabetes and Obesity

This resource is under development and is being trialled in schools. It contains activities to encourage young people to explore scientific health issues. For more information on this new resource please contact: **lets.talk@btinternet.com**

An Activity to Explore Portion Size

What does this table show?

food	mass (g)	energy (Calories)	energy (kilocalories)	energy (kilojoules)
apples	385	200	200	840
fried bacon	34	200	200	840
kiwi fruit	328	200	200	840
butter	28	200	200	840

- What do you notice about the mass of the foods?
- What do you notice about the Calories/kilojoules in each of the foods?
- What is the difference between ***serving size*** and ***portion size?***
- Look at the nutrition information, particularly the serving size, on foods at home and bring back your findings to class. Would one serving size of cereal be enough for you in the morning? How many do you think you actually use? How many Calories does that much contain?

A website exploring portion sizes and school aged pupils:
http://www.nche.org/2004PortionSizes-SchoolAged.pdf

Our Physical World: Forces and Motion

Smart Driving: Under-inflated tyres cost the UK Motorists £1 Billion a year in higher fuel bills and reduced tyre life

Collect a selection of new car brochures. Working in groups, compare two chosen cars for fuel efficiency. Then discuss what factors the pupils think will affect fuel efficiency. These could include: the pressure of the air in the tyres and their fuel efficiency, ability of synthetic fuels to increase fuel efficiency and the role of air resistance in the fuel efficiency of vehicles.

Here are two activities to explore these effects on fuel efficiency.

How does the pressure of the air in a ball affect its speed when rolled across the floor?

Materials (per group)

Beach ball

3 metre sticks or 2 metre sticks and a tape measure

Pump for inflating balls

Stopwatch

Method: Demonstrate how to use the pump to add air to the balls. Show the pupils how air can be released from the ball by squeezing the valve. We found that the best way to launch the ball was using a ramp made from two parallel metre sticks attached to a stool as shown (Figures 1 and 2). The crossbar of the stool was about 25 cm from the floor.

Figure 1: Ball on a ramp

Ask pupils what they should measure and which variables need to be controlled. Either the time to travel a particular distance or the distance travelled by the ball once it leaves the foot of the ramp can be recorded. We found the latter to be easier.

Pupils should fully inflate the balls then release them, measuring as appropriate. It is best to release the ball five times and take an average measurement if the pupils are able to do so. They should then release some air from the ball and repeat the experiment. Note that if they release too much air, the ball may not move down the ramp.

Figure 2: One way of making a ramp

The results should show that the lower the air pressure, the slower the ball moves. With higher air pressure, the ball should roll faster and hence travel further from the foot of the ramp before stopping.

With lower air pressure the ball has a greater rolling resistance. The same thing happens with car tyres and is responsible for cars with under-inflated tyres using more fuel. (Over-inflated tyres have poor grip and make the car's ride very harsh). Pupils could ask parents if they have a tyre pressure gauge and how often the tyre pressure is checked on the family car. What are the recommended tyre pressures for the tyres on the cars? Are they all the same? Why might they be different? Many manufacturers are producing special economy versions of their cars, for example the VW Polo Bluemotion. These have low rolling resistance tyres fitted as standard.

Notes

We tried using a football instead of a beach ball but were unable to get convincing results. If you can lay your hands on a wheelbarrow with a pneumatic tyre, try loading it up, for example with ten 2 litre plastic bottles full of water, and asking pupils to push it with the tyre inflated. Let air out of the tyre then tell them to try again. After doing this they should have no difficulty in appreciating that it takes more energy to move a car with under-inflated tyres!

Extension activity: Find out what happens to old tyres in the local area.
Summarise the findings in a poster.

http://www.how2begin.com/automotive/how-to-recycle-your-tyres-tires-3.html

http://www.letsrecycle.com/equipment/tyres.jsp

Our Physical World: Forces and Motion:

What a Drag!

How does the shape of an object affect its speed?

This investigation will explore the relationship between the shape of an object and its air resistance. Drag is the resistance any object feels while moving through a liquid or a gas. If you hold your hand out the window of a moving car, drag is the wind resistance pushing against it. Nearly 60% of the fuel a car uses to drive at a constant 55 m.p.h. (90 k.p.h.) goes into overcoming wind resistance. So reducing a car's drag can greatly improve its fuel consumption. Pupils can then relate their findings to the shapes of cars and so their fuel efficiency.

In this activity, we deliberately make a small cart un-aerodynamic by making a large baffle for it from *Corriflute* or stiff cardboard. The air resistance on the cart (known as aerodynamic drag) then becomes sufficiently great to lengthen, by a noticeable amount, the time taken by the cart to run down a slope. Pupils should be able to relate the cart with the baffle to vehicles with poor aerodynamics.

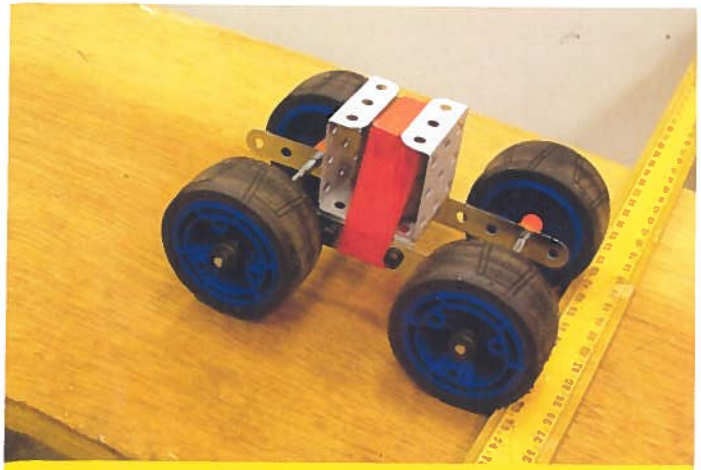


Figure 1: Meccano cart with weight taped on

Materials

Wooden plank, 170 x 30 cm
Brick (or box), to support the plank
Meccano cart with 2 axles and 4 wheels
Corriflute or stiff cardboard sheet, 50 x 50 cm
Polystyrene wedge, about 1 cm thick, to support Corriflute
Brass weight, 200 g
Adhesive tape (or Sellotape)
Stopwatch

A cart made from Meccano, carrying a 200 g load, was allowed to run freely from a standing start down an inclined plane. (Figure 1).

The descent was timed with a stopwatch reading to one hundredth of a second and the runs repeated at least 5 times from which the average time was found. The cart was then modified by removing the 200 g load and fitting within its central U-piece a sheet of Corriflute measuring 50 cm square. This was wedged in place with some polystyrene and secured to the cart with tape (Figure 2). The total weight of the Corriflute and polystyrene was about 200 g.

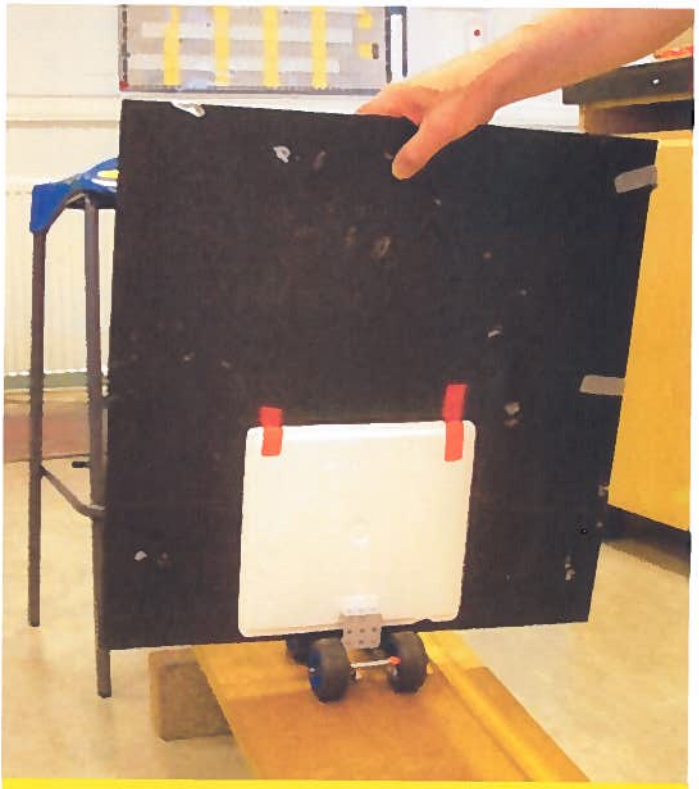


Figure 2: Meccano cart with large baffle

For our inclined plane we used a plank of wood 1.7 m long. The exact length doesn't matter, but should be over 1.0 m. The slope should be at an inclination of between 3° and 10° and preferably at the gentler end of this range. For a 1.0 m length of slope, a vertical rise of 7 cm is suitable.

The pupils should make a few practice runs to learn what to do. If working in pairs, the one with the stopwatch should count down "3, 2, 1, Start", signalling when the other lets go the cart at the top of the slope. It really is crucial that the cart makes a standing start and is not given a helping shove because that just messes up the results.

Typical results are:

Time of descent without baffle: 3.2 s

Time of descent with baffle 4.4 s

The results should be repeated because the different times will be found to have a spread of about 0.6 s. If the average is taken, the difference should be convincing.

Notes

The size of the baffle may seem huge compared with the cart. We found that sizes smaller than around 50 cm square had a negligible effect. Using a very light cart made, for example, of balsa wood might allow a smaller baffle to be used. Sharp pupils will realise that the 200 g weight is necessary for a proper scientific test. If the cart without the baffle weighs less than the cart with the Corriflute fitted, how do they know it was the baffle rather than the different weight that affected the time?

Forces and Motion **Second**

By carrying out investigations into friction I can explain how it affects movement, and can use my understanding of friction to design or improve a product.

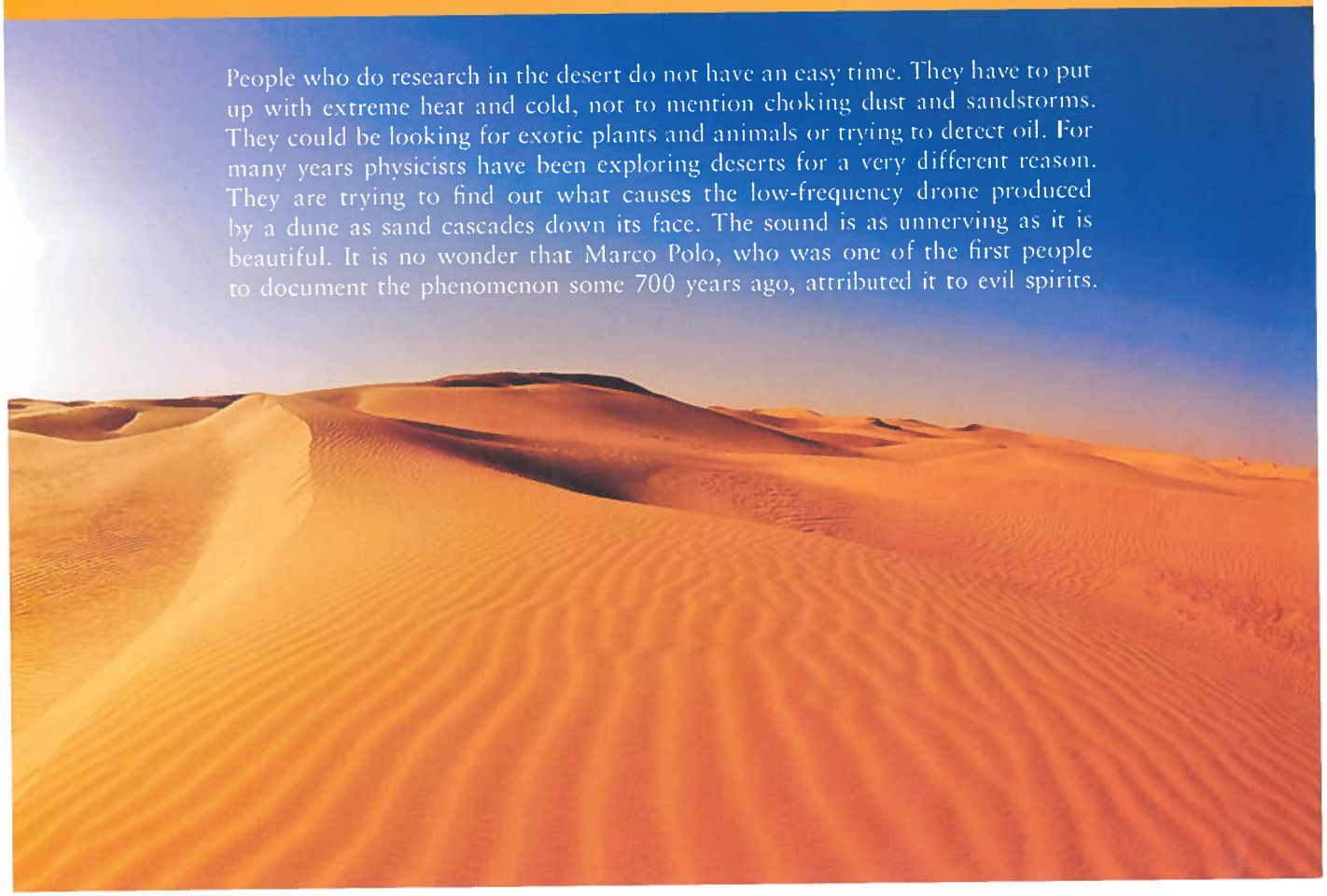
SCN 222L

Forces and Motion **Second**

Using my understanding of forces, I can test ideas about safety design features in vehicles and use my results in an innovative safe design.

SCN 223L

The Sounds of the Sand Dunes – An Introduction to Sound



People who do research in the desert do not have an easy time. They have to put up with extreme heat and cold, not to mention choking dust and sandstorms. They could be looking for exotic plants and animals or trying to detect oil. For many years physicists have been exploring deserts for a very different reason. They are trying to find out what causes the low-frequency drone produced by a dune as sand cascades down its face. The sound is as unnerving as it is beautiful. It is no wonder that Marco Polo, who was one of the first people to document the phenomenon some 700 years ago, attributed it to evil spirits.

For further information about this strange phenomenon and to hear the sounds go to:

http://news.nationalgeographic.com/news/2004/10/1020_041020_sand_dunes.html

http://en.wikipedia.org/wiki/Singing_Sand_Dunes

http://www.pbs.org/wgbh/nova/sciencenow/3204/04-recipe.html

Bubble Stuff

It took a mere few seconds for 'bubbleologist' Sam Heath to encase 50 children in an iridescent, glistening bubble of soap and water to set a new **Guinness World Record** at the Science Museum in London.

http://www.dailymail.co.uk/sciencetech/article-496042/Fifty-children-wrapped-record-breaking-bubble.htm

One of the best mixtures to explore the properties of bubbles

Materials:

1 part washing up liquid *e.g.* Fairy

8 parts of water (soft or distilled water works best)

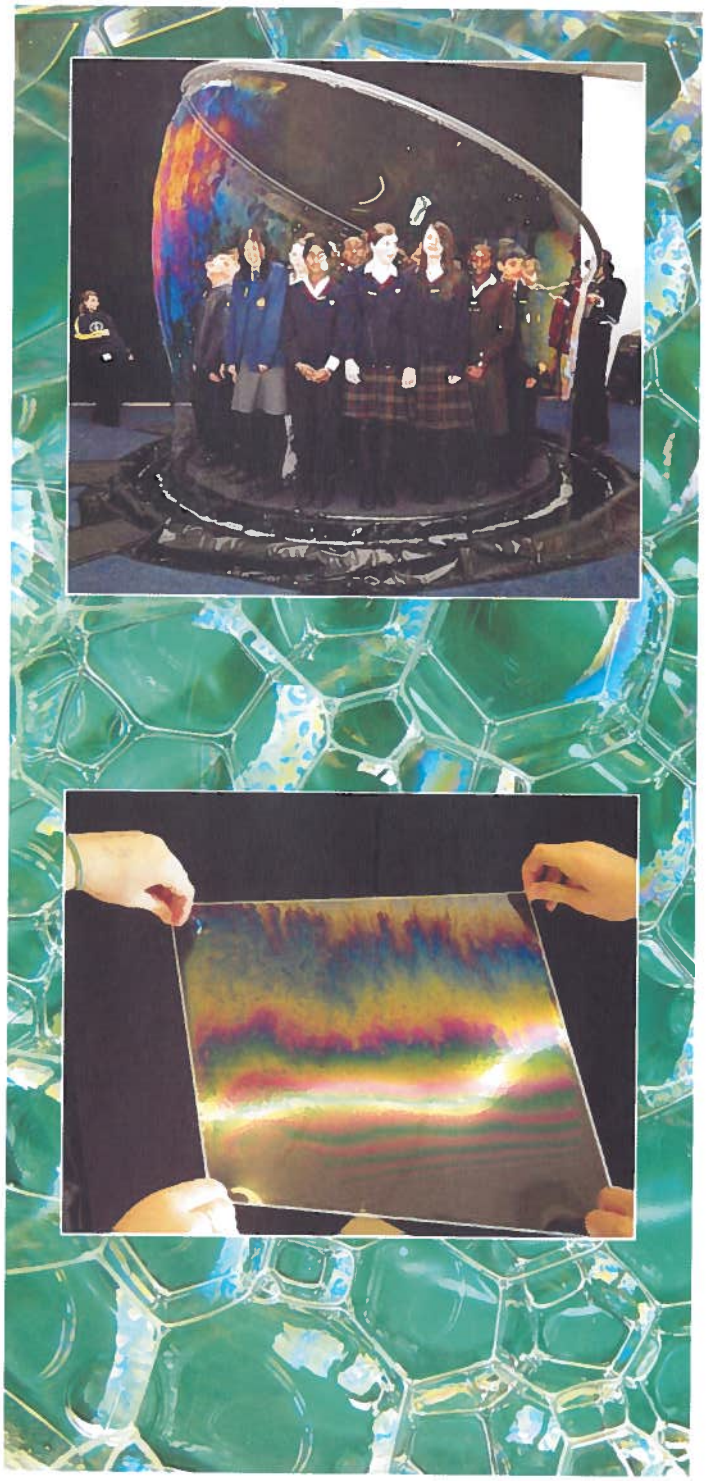
½ part glycerine. (found in small bottles in supermarkets beside food colourings. It is used to soften icing)

Method:

Mix the ingredients carefully in a basin and store in a large plastic bottle. The mixture works better if stored overnight and can be reused for several weeks. You may need to top up as the volume will decrease with use. Equipment for making bubbles can include plastic straws, pipe cleaners, funnels and hula hoops. Use a child's paddling pool to create giant bubbles by pouring the bubble mixture into the base of the pool and covering the hula hoop with mixture. Place a small low standing stool on the base of the paddling pool so that the pupil can stand in the mixture without getting wet. Gently pull the hula hoop up and over the pupil so 'enclosing' them in a bubble. Care should be taken when stepping on and off the stool. The hula hoop may be covered in string which will allow more bubble mixture to enclose the pupil. See the photographs below.

Further Investigations:

Explore the best combinations of ingredients for the longest lasting bubble. Some recipes suggest adding syrup, especially corn syrup as this makes the bubble more flexible.



Properties and Uses: First

I have explored the properties of different materials and can use my experience to choose appropriate materials to solve a practical challenge.

SCN 115X

Properties and Uses: Second

Having planned and carried out an investigation into a property of a material, I can evaluate the effectiveness of the materials for its purpose.

SCN 232X

Our Living World: Sustainability

Topical Science

Thirsty Work: Just What is in bottled Water?

Many people now buy bottled water. What are the reasons for this? Get the class to suggest some of the reasons for the huge increase in bottled water consumption. Some reasons may be based on health or lifestyle trends. What countries buy the most bottles water? Which countries are often short of water?

What do we mean by mineral water? What are minerals? How do mineral waters differ? Why do we need minerals?

Four years ago a large drinks manufacturer launched a water product that turned out to be tap water. They are about to launch another product in the UK that contains vitamins. Another drinks manufacturer has also launched a brand of water, which comes in six flavours, is made from spring water and has additions such as vitamin C, zinc and ginseng.

Pupils could investigate the ingredients of these specialised waters and find out what benefit they are supposed to confer on the drinker. What are the pros and cons of buying bottles water? What are the environmental concerns?

How does water get recycled in the environment? How are water supplies different in a variety of countries? How is water cleaned? How can we help to conserve water?

Useful Websites:

Planet Science:

Resources for teachers and parents:

http://www.scienceyear.com/about_sy/start.html
http://www.summerscience.org.uk/08/
http://www.nationalgeographic.com/kids/activities/

CPD Events coming up: Please phone/email SSERC for details or check out the SSERC website:

http://www.sserc.org.uk/public/CPD/2008-9/BTG.htm#Other_events

Primary A:
Thursday 30th October - Saturday 1st November 2008

Primary B:
Thursday 4th - Saturday 6th December 2008

ASE Day Conference, CfE learning outcomes for S1/S2 & Primary- Robert Gordon's College - 15th November 2008.

Hey, that's a good idea!

(In future this section will be made up from teachers ideas sent in via email to Primary Science Editor).

Submit your own Science Idea!

www.sserc.org.uk

These contributions are moderated, so they may not appear to other visitors immediately. All ideas submitted here may be added to their own dedicated page on the site at a later date. Please leave your name so that I can credit your contribution, if you would like me to.

Topical Science: First
I have contributed to a class display of current scientific news items to help me develop an awareness of topical science.
SCN 116BB

Topical Science: Second
Through research and discussion I have an appreciation of the contribution that individuals are making to scientific discovery and invention and the impact this has made on society.
SCN 235BB

Topical Science: Second
I can report and comment on a current scientific news item to develop my awareness of topical science.
SCN 236BB

Sustainability: Second
I can research a major environmental or sustainability issue of national or global importance and report on my findings.
SCN 202A

Sustainability: Second
I can give a presentation to demonstrate my understanding of the importance of the water cycle in nature.
SCN 203A

Sustainability: Second
I can talk about the importance of water supplies to people all over the world and can demonstrate ways to clean and conserve water.
SCN 204A