

Future Schools
Competition
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CELEBRATING

25
YEARS

SCIENCE WEEK

8-15 Nov 2020

Supported by Science Foundation Ireland

CHOOSING OUR FUTURE: HEALTH AND WELLBEING

Classroom Resource Booklet



Design Your Future School Competition:

Check out our Science Week Design your Future School Competition at the end of investigation 3! Share your class' future school designs with us on twitter to be in with a chance of winning a virtual science show for your school! To enter, post photos of your future school designs on twitter, making sure to use the hashtag #futureschools and to mention @ScienceWeek in your post. Winners will be announced following Science Week. We can't wait to see your creations!





FRAMEWORK FOR INQUIRY

THEME	OVERALL THEME	
CURRICULUM	Strand:	
	Strand Unit:	
	Curriculum Objectives:	
	Skills Development:	

ENGAGE		
THE TRIGGER	WONDERING	EXPLORING

INVESTIGATE			
STARTER QUESTION	PREDICTING	CONDUCTING THE INVESTIGATION	SHARING: INTERPRETING THE DATA / RESULTS

TAKE THE NEXT STEP		
APPLYING LEARNING	MAKING CONNECTIONS	THOUGHTFUL ACTIONS

REFLECTION	
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Considerations
for inclusion



FRAMEWORK FOR INQUIRY

THEME	CHOOSING OUR FUTURE – HEALTH AND WELLBEING
CURRICULUM	<p>Strand: Living Things, Environmental Awareness and Care</p> <p>Strand Unit: Human Life, Environmental awareness, Caring for the environment</p> <p>Curriculum Objectives: Become aware of the names and structure of some of the body's major external and internal organs; become aware of and investigate breathing; develop an awareness of the importance of food for energy and growth; examine a number of ways in which the local environment could be improved or enhanced; identify positive aspects of natural and built environments through observation, discussion and recording; participate in activities that contribute to the enhancement of the environment</p> <p>Skills Development - Working Scientifically: Questioning, Observing, Predicting, Analysing, Investigating, Recording and Communicating; Design, plan and carry out simple investigations Designing and Making: Exploring, Planning, Making, Evaluating; Work collaboratively to create a design proposal; Communicate and evaluate the design plan using sketches, models and information and communication technologies use small models and/or sketches showing measurements and materials required list the equipment needed consider the resources available; Evaluate the effectiveness of the new product and suggest modifications to the designing and making task suitability of materials chosen, aesthetic outcomes, the extent to which objects fulfil needs identified earlier</p>

ENGAGE		
THE TRIGGER	WONDERING	EXPLORING
<p>Heart</p> <p>The Body Brothers – Heart. Watch here.</p> <p>How to feel your heart beat. Watch here.</p> <p>Lungs</p> <p>The Body Brothers – Breathing. Watch here.</p>	<ul style="list-style-type: none"> What parts of our body have to work to keep us healthy? – Heart, lungs, digestive system What happens to our heart when we exercise? What things do we need to do to keep ourselves healthy? – food, water, exercise, sleep How can we develop healthy habits? How do we keep our minds healthy? Is there a connection between healthy bodies and healthy minds? Is there a connection between our health and our environment? How could we design our surroundings to help keep us healthy? 	<p>Heart</p> <ul style="list-style-type: none"> What happens to your heart when you exercise? What can we measure and how? <p>Lungs</p> <ul style="list-style-type: none"> Place a hand on your chest while you take a deep breath in and then release the air. What did you notice? Repeat with your hand on your stomach? How do you think your lungs will with air? Can we count how many times we breathe in and out in one minute? <p>Design Challenge</p> <ul style="list-style-type: none"> Take a walk around your school grounds. Are they designed well for promoting health and wellbeing? What changes would you like to see?

Considerations for inclusion

Consider potential area of difficulty for students with Special Educational Needs.



FRAMEWORK FOR INQUIRY

INVESTIGATION 1 – EXERCISE AND YOUR HEART			
STARTER QUESTION	PREDICTING	CONDUCTING THE INVESTIGATION	SHARING: INTERPRETING THE DATA / RESULTS
What happens to our heart rate when we exercise?	<p>After 5 minutes of exercise will our heart rate be</p> <ul style="list-style-type: none"> • Faster? • Slower? • The same? <p>How would we find out?</p>	<ul style="list-style-type: none"> • What do we need to measure? Pulse rate • When do we measure? Before and after exercise • How will we record it? • Is there anything else we could measure? How long it takes to return to normal. Read More. 	<ul style="list-style-type: none"> • What has happened to your heart rate? • Why do you think this is? • Was everybody's heart rate the same before exercise? • Why not? We are all different, but all within the same range • Was everybody's heart rate the same after exercise? • Why Not? Differences in fitness level, rate of exercise and our bodies • Are there any other things that make our hearts beat faster? Worry, fear • Did you notice anything else happening in your body during and after exercising? Breathing

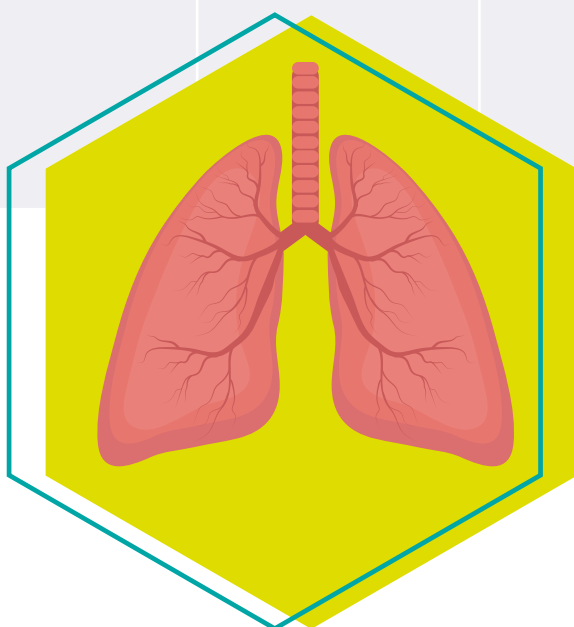
Considerations for inclusion

Consider potential area of difficulty for students with Special Educational Needs.



FRAMEWORK FOR INQUIRY

INVESTIGATION 2 – INVESTIGATING LUNGS			
STARTER QUESTION	PREDICTING	CONDUCTING THE INVESTIGATION	SHARING: INTER- PRETING THE DATA / RESULTS
<p>Can we make a model of the lungs to show how they work?</p> <ul style="list-style-type: none"> What parts of our body are involved when we breathe? Nose, airway (trachea), lungs, diaphragm What happens when we breathe? – the movement of the diaphragm allows air to come in and out of our lungs 	<ul style="list-style-type: none"> What materials could we use to represent the ribcage, the lungs and the diaphragm? How will we simulate the movement of the diaphragm 	<ul style="list-style-type: none"> Build and test your model Does it show what is happening in the lungs? Read More. 	<ul style="list-style-type: none"> Were you happy with how your model worked? Were you able to move the diaphragm? Did the lungs inflate when the diaphragm was stretched? Could you see what was happening? Did you encounter any problems with your design? Would you do anything differently? How do we make sure we will always have fresh air to breathe?



Considerations for inclusion

Consider potential area of difficulty for students with Special Educational Needs.



FRAMEWORK FOR INQUIRY

INVESTIGATION 3 – DESIGN AND MAKE CHALLENGE - DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING			
STARTER QUESTION (EXPLORING)	PREDICTING (PLANNING)	CONDUCTING THE INVESTIGATION (MAKING)	SHARING: INTERPRETING THE DATA / RESULTS (EVALUATING)
<p>What do we need to keep our bodies healthy?</p> <ul style="list-style-type: none"> • Healthy food • Clean water • Exercise • Sleep • Fresh Air • Have a healthy mind <p>What do we need to keep our minds healthy?</p> <ul style="list-style-type: none"> • Have a healthy body • Connect with nature • Grow our own food • Keep calm and reduce worries <p>What about the long term health of people and our planet?</p> <ul style="list-style-type: none"> • Food, air and water all need a healthy environment • We need to halt Biodiversity Loss and tackle Climate Change to look after our future health 	<ul style="list-style-type: none"> • How could we design our school grounds to help keep our bodies and minds healthy? • What is already in the school garden and what do we want to add? Watch - Designing Your Garden • What should we include in our design? <ul style="list-style-type: none"> - Space to exercise - Space to grow food - Space to connect with nature (Biodiversity -trees, wild flowers, birds, insects) - Space for calm and quiet • Gardening for Biodiversity. Watch Here 	<p>How will we create our design? We could use a number of methods</p> <ul style="list-style-type: none"> • Draw the design on paper. Watch - How to Make a Biodiversity Map • Model it with recycled materials • Build it with Lego • Model it with Minecraft. Read More • Build it outside in 3D. Read More 	<ul style="list-style-type: none"> • Were you happy with your design? • Did it include all of the different areas for health? • Would you like to spend time in your school grounds if they looked like your design? • What was your favourite part of your design and why? • Would you do anything differently next time? • What parts of your design would be easy and cheap to implement e.g. Growing food in the school garden, reduced mowing and elimination of chemicals for biodiversity. • What parts of your design would need more time, money or planning?

Considerations for inclusion

Consider potential area of difficulty for students with Special Educational Needs.



FRAMEWORK FOR INQUIRY

TAKE THE NEXT STEP		
APPLYING LEARNING	MAKING CONNECTIONS	THOUGHTFUL ACTIONS
<p>Physical Health</p> <ul style="list-style-type: none"> Understanding how the heart works: Body brothers heart – full episode Body brothers breathing - Full episode How Much Air Can My Lungs Hold? Microbes: Good bacteria in your gut <p>Connections Between Physical Health and Mental Wellbeing</p> <ul style="list-style-type: none"> How is our physical health connected to our mental wellbeing? Are there any other things that can cause changes in our heart rate or breathing rate? – worry, fear, stress Operation Ouch – heart beat and fear How does our brain connect to the other parts of our body? Can we learn to calm our breathing and heart rate to deal with worry or fear? Cosmic Kids – The owl and the guard dog <p>Our Health and Our Environment</p> <ul style="list-style-type: none"> Our health is linked to our environment. We need to protect Biodiversity in order to have clean air, clean water and healthy food and protect us from disease Benefits of Biodiversity What impact will Biodiversity Loss and Climate Change have on our health? How can we make a difference in our school grounds and in our gardens? Gardening for Biodiversity Video Gardening for Biodiversity Book Download <p>Healthy Eating - School Gardens</p> <ul style="list-style-type: none"> Healthy bodies depend on having healthy food to eat SEED Paddy Madden Organic Gardening for Primary Schools <p>Our Atmosphere and Space Links</p> <ul style="list-style-type: none"> ESERO Ireland - Investigating the Atmosphere Paxi - Exercising in Space <p>Connections with SFI Discover Science and Maths Awards</p> <ul style="list-style-type: none"> Investigation 1: Heart Rate and Exercise - Living things Investigation 2: Investigating Lungs - Living things Investigation 3: Design Challenge (links to award sections would depend on how the challenge is approached so it could possibly fit under any one* of the following: <ul style="list-style-type: none"> Step 1 Science - Environmental awareness and care: making a biodiversity map Step 1 Science – Materials: use of Lego, recycled or natural materials to make the model Step 2 Technology: use of Minecraft for design Step 3 Engineering: Any design and make challenge can qualify as an Engineering activity Step 4 Maths: Any work on measuring, scales, ratios could be included as a maths step <p><small>*Remember to only include each activity only once in your log of evidence. You cannot include the same activity under more than one step</small></p> <p>Connections with Sustainable Development Goals</p> <ul style="list-style-type: none"> Goal 3: Good Health and Wellbeing Goal 11: Sustainable Cities and Communities Goal 15: Life on Land 		

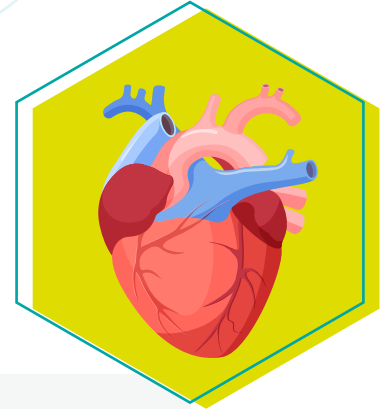
Consider potential area of difficulty for students with Special Educational Needs.

REFLECTION	
	<ul style="list-style-type: none"> Did I meet my learning objectives? Are the children moving on with their science skills? Are there cross curriculum opportunities here? What went well, what would I change? Did I take into account the individual learning needs of my students with SEN? What differentiation strategies worked well?

INVESTIGATION

1

EXERCISE AND YOUR HEART



Investigation or Challenge: Investigation

Duration: Medium (20-60 minutes)

Class Level: Junior/Senior

Curriculum Links:

Strand: Living Things

Strand Unit: The Human Body

Skills Development: Investigating, recording, analysing

Equipment/Materials:

Watch, paper, pencil, skipping rope (optional).

Engage

Trigger questions

- Where is your heart? What does it do? (Heart pumps blood to all parts of the body.)
- Why is it so important? (The blood brings oxygen to the muscles.) What is your heart rate?
- How would we measure it? Do you notice anything about your heart rate after you have been running? Or when you are frightened?

Background Info.

Our hearts are pumping at a regular rate. This pumping can be felt by placing fingers across the pulse point at the wrist or the neck, and the rate can be counted. An adult's heart rate is around 70 beats per minute, and a child's is a bit higher. (A mouse's is about 500 per minute, and an elephant's 25!). Heart rate increases with exercise so that more of the oxygen carried in the blood can reach the muscles. The fitter you are, the quicker your heart rate returns to normal. (Some children may find it hard to find their pulse point, so it might be a good idea to encourage them to find it sometime before the lesson, e.g. after exercise in a PE class)



EXERCISE AND YOUR HEART

Investigate

1 Comparing heart rate before and after exercise

- Ask the children to take their own pulse. They can count the number of beats in 30 seconds and double this to get the number of beats per minute. They should record this. Then allow the children to run around or skip for 5 minutes and record their pulse using the same method. Finally let them rest for a few minutes and then take their pulse again and record it. How long did it take to return to the normal rate?
- Discuss with the children what happened to their pulse rate after exercise. Did it increase, stay the same or fall?
- The children can design a table or graph to show their results. Results can be collated to create a group or class chart.

2 See your pulse!

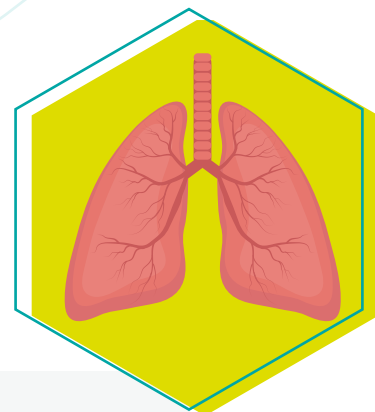
- Find your pulse point on the inside of your wrist below your thumb. Place a piece of plasticine (or blu-tack) on this point and push one end of a drinking straw into the plasticine so that it stands upright from your wrist. Lay your arm flat on the table. If you keep your arm very still you may notice the straw rocking backwards and forwards slightly as the blood pumped by your heart passes through your wrist. If you have a watch you or your friend can count the number of times the straw rocks in one minute.

Safety

Children should be physically fit for this exercise. Children with medical problems should not be put at risk when investigating the effect of exercise on heart rate.

Take the Next Step

Follow-up challenge/project/citizen science link: Why not try a project on animal's heart rates? Look up your favourite animal and check what their heart rate is. Could this relate to the animals size or where they live?



Investigation or Challenge: Investigation

Duration: Medium (20-60 minutes)

Class Level: Junior/Senior

Curriculum Links:

Strand: Living Things

Strand Unit: The Human Body

Skills Development: Experimenting, observing

Equipment/Materials:

Small plastic bottle, 2 round balloons, scissors.

Engage

Trigger questions

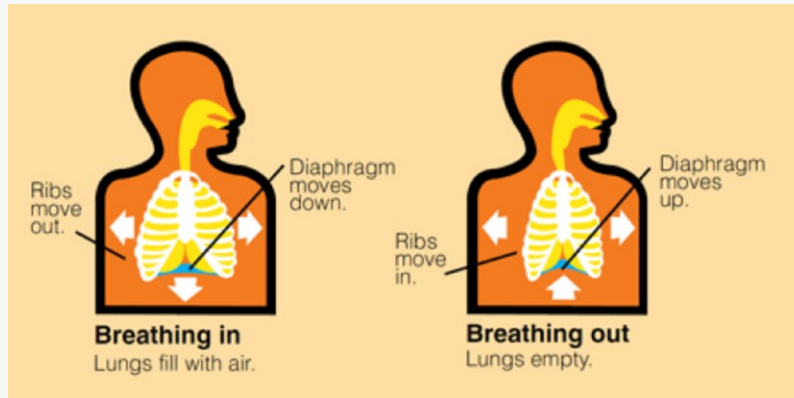
- Why do you need to breathe? (To take in air)
- Why do you need to take in air? (So that your body gets oxygen)
- Why do you need oxygen? (Body cells – the tiny pieces that make up your body- use oxygen to release energy from food. Without oxygen they would die in a few minutes).
- What do you breathe out? (Carbon dioxide)

Background Info.

When you breathe in, a muscle under your chest, called your diaphragm, moves down and your ribs move out. This makes the space bigger and so you get lower air pressure in your lungs. Air now rushes in from outside. When you breathe out your diaphragm moves up and your ribs move back in, and the air gets pushed out.

The model works in a similar way: When you pull down on the rubber, the space inside the bottle gets bigger and the air spreads out. You now have lower pressure inside the bottle, so the higher pressure outside pushes air in; the balloon is blocking the way, so it takes in the air. (This is like breathing in).

When you push in the rubber the opposite happens – the air inside the bottle gets squashed up (higher pressure now) and this higher pressure pushes air out of the balloon (this is like breathing out).



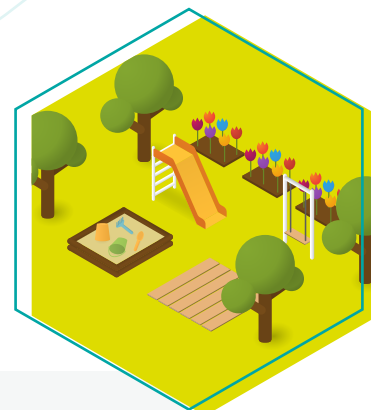
Investigate

Make a Model of Your Lungs

- 1 Push one balloon into the neck of the bottle, and fold the neck of it round the neck of the bottle.
- 2 Cut the entire neck off the other balloon, and dispose of the neck. Stretch the remaining piece of balloon, placing it over the open end of the bottle to form an air-tight join (seal if necessary with tape).
- 3 Pull on the middle of the piece of rubber. What happens to the balloon? (The balloon gets bigger).
- 4 Let go the piece of rubber, and then push it in gently. What happens to the balloon? (The balloon gets smaller).
- 5 Repeat stages 3 and 4: this time breathe in while doing Stage 3 – can you feel your ribs move out as your lungs expand and your diaphragm moves down; and breathe out while you do stage 4 – can you feel your ribs move back in as your lungs contract and your diaphragm moves up? Can you see that your diaphragm (the rubber) and lungs (balloon) behave in a similar way to the rubber and balloon?

INVESTIGATION 3

DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING



Investigation or Challenge: Challenge

Duration: Long (>1hr)

Class Level: All

Curriculum Links:

Strand: Environmental Awareness and Care; Living Things; Materials

Strand Unit: Environmental Awareness; Caring for the Environment; Properties and Characteristics of Materials

Curriculum Objectives: Identify positive aspects of natural and built environments through observation, discussion and recording; Examine a number of different ways in which the local environment could be improved or enhanced; Investigate how materials may be used in construction

Skills Development: Explore freely how a range of shapes, objects and other constructions could be made using a variety of materials; Recognise a need to adapt or change an object or surroundings; Work collaboratively to create a design proposal: Communicate and evaluate the design plan using sketches, models and information and communication technologies use small models and/or sketches showing measurements and materials required, list the equipment needed consider the resources available; Evaluate the effectiveness of the new product and suggest modifications to the designing and making task suitability of materials chosen, aesthetic outcomes, the extent to which objects fulfil needs identified earlier

Equipment/Materials:

For Exploring: Base map of the school (Can be sourced online or drawn as a sketch map, pencils, crayons, camera)

For Planning: Pencils and paper or ICT tools

For Making: Choose from a number of options

- **Reused / Recycled materials (materials diverted from recycling or waste bins):**
Cereal or other boxes, old magazines, newspapers, foil from biscuit packets, plastic containers and lids, wood offcuts, fabric scraps, lollipop sticks, string
- **Construction toys:** LEGO, K'nex etc.
- **Natural Materials:** Leaves, twigs, stones, bark, grass clippings, soil
- **ICT Equipment and software:** Design using tablets or computers and software such as Minecraft



DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING

Note on sustainability for Design and Make Activities:

- Avoid using single use items such as craft foam, plastic film, disposable plates, cups etc. tinfoil and polystyrene balls or beads for design and make activities. Never use glitter as it is a microplastic which spreads everywhere and is very harmful to the environment.
- Avoid mixing man-made and natural materials as this makes waste separation and especially composting difficult.
- Make use of outdoor resources. Fallen leaves, twigs, pinecones and stones can be used outdoors for lots of design and make projects and returned to their natural environment afterwards. When making items outdoors either make them entirely out of natural objects which can then biodegrade or check on them regularly to ensure there is no breakdown of plastics, flaking of paints etc and resulting environmental damage

Engage

Trigger questions

- What do we need to keep our bodies healthy?
- What do we need to keep our minds healthy?
- What about the long-term health of our planet?
- Are our school grounds designed well for promoting the health of our minds and bodies?

Background Info.

Spending time in the outdoor environment is essential for people's physical and mental wellbeing. Numerous international research projects collated by The Children and Nature Network have documented the benefits of outdoor time and contact with nature. Reported physical benefits include increased vitamin D levels, improved eyesight, improved health and increased physical activity. Reported mental and emotional benefits include reduced, stress, anger and aggression, increased self esteem and increased levels of environmental awareness and care for the environment. Reported academic benefits include increased attention span and engagement, better behaviour in class and improved academic performance.

Learners spend time in the school grounds during break times, but they can also be used for a huge variety of curriculum based outdoor lessons. This challenge encourages learners to think about their own health and wellbeing and about the potential uses of the school grounds to enhance their physical and mental health. It also encourages them to critically evaluate their own designs in terms of what is realistic and what is physically and financially possible.



DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING

Real World Application

The designs and models may be very imaginative and in some cases may include unrealistic elements but learners should be encouraged to evaluate their designs in terms of which elements would be most useful in the school and which could most easily be implemented. The focus on our outdoor spaces for health and wellbeing has wider implications and can lead to discussions and studies on local, national and global outdoor spaces and the need for reducing pollution and waste and protecting biodiversity

Design challenge

Explore

Take a walk around the school grounds and evaluate them.

- What do you like about the outdoor spaces in your school and what would you like to improve?
- What are the outdoor spaces in our school currently used for? – make a list.
- What else could your outdoor spaces be used for? – brainstorm ideas.
- Is your school wildlife friendly? – Think about trees and wildflowers, birds and insects
- Has your school got a vegetable garden to grow healthy food?
- Has your school got space for creative and imaginative outdoor play?
- Is your school designed for outdoor learning?

Plan

What improvements would you like to see in your school grounds?

- As a whole class, set criteria for your design e.g. what elements must be included, what tools and materials can be used, what size should your completed model be?
- Work in groups to design your ideal school, grounds
- Brainstorm ideas
- Draw a sketch or map of your school – you can draw your own map or source a base map online and add to it
- Sketch your ideas on to your map or write them into your plan



DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING

Make

In your groups, make a model of your plan in 3-D.

- Outdoors: You could make your models outdoors in the school grounds using leaves, twigs, stones and other natural items.
- Indoors: You could build your design indoors with LEGO, K'nex or other construction toys or use recycled materials to make it.
- Using Technology: You could use computers or tablets and software such as Minecraft to design your ideal school grounds.

Evaluate

Evaluate your initial design and your completed model

- Were you happy with your initial plan?
- Did the plan change as you developed it?
- Were you happy with the final model?
- Did you encounter any problems and how did you overcome them?
- What was your favourite part of your design and why?
- Which parts of your design were the most realistic?
- Which parts would be possible / easy to implement in your school?
- What barriers would there be – cost, space, work involved, only suitable for small numbers?

Take the Next Step

Adapt for Home: The project could be given as a task to be completed wholly or partially at home. Instead of designing the school grounds, some learners might instead look at designing their own garden, yard or balcony, a local park or the area around their house or apartment block.

Adapt for Junior/Senior level: Junior classes could all work in one medium such as Lego or recycled materials with the teacher outlining the task and setting criteria. For example, as a Lego challenge, each group could be given the same size base board and asked to design a school yard with space for exercise or play, space for nature and space for growing food.

Senior classes could be given more scope to set criteria and choose what materials and tools to work with. They could also be encouraged to plan their design around their own school using scale drawings and models and to critically evaluate their own work and give constructive feedback on other groups' work.

Follow-up challenge/project/citizen science link: As a class, look at all the designs and see which elements it would be possible to implement in your school. Could you take something on as a class project? What improvements might you see as a result?



DESIGN YOUR SCHOOL GROUNDS FOR WELLBEING

Think of creative way to bring some elements of your classwork outdoors – Science, Geography, Art and Creative writing are all very well suited to an outdoor environment as are elements of all other subjects.

Apply what you have learned from this project to evaluate the design of outdoor spaces in the local area. Are they well designed for people, for wildlife and for sustainability? Local county councils often look for submissions from the public on environment and recreation. Contact your local council and give your views.

Evaluate outdoor spaces in Ireland and other countries. Think about places you have been and research other places. Develop case studies on some good National and International examples.

While looking at outdoor spaces in your school, take a look at the plants and animals that are found in your school. Has the amount of biodiversity increased as a result of your actions? There are lots of citizen science projects you can take part in:

- Schools can take part in the Birdwatch Ireland Garden Bird Survey from December to February every year
- You can get involved with the All Ireland Pollinator Plan, download resources, posters and signs and map any actions you have taken for pollinators
- You can record any wildlife spotted in your school with the National Biodiversity Data Centre

SDG Links:

- 3 Good health and wellbeing
- 11 Sustainable cities and communities
- 15 Life on land

Design Your Future School Competition:

Share your class' creations with us on twitter to be in with a chance of winning a virtual science show for your school! To enter, post photos of your future school designs on twitter, making sure to use the hashtag #futureschools and to mention @ScienceWeek in your post. Winners will be announced following Science Week. We can't wait to see your designs!





FRAMEWORK FOR INQUIRY - PROMOTING INCLUSION

When planning science activities for students with Special Educational Needs (SEN), a number of issues need to be considered. Careful planning for inclusion using the framework for inquiry should aim to engage students in science with real purpose. Potential areas of difficulty are identified below along with suggested strategies. This list is not exhaustive, further strategies are available in the Guidelines for Teachers of Students with General Learning Disabilities (NCCA, 2007).

ENGAGE	
POTENTIAL AREA OF DIFFICULTY Delayed language development/poor vocabulary/concepts	STRATEGIES <ul style="list-style-type: none">• Teach the language of science demonstrating meaning and/or using visual aids (material, property, strong, weak, textured, dimpled, absorbent, force, gravity).• Have the student demonstrate scientific phenomena, for example gravity —using ‘give me, show me, make me,’ as much as possible. Assist the student in expressing ideas through scaffolding, verbalising a demonstration, modelling. Use outdoor play to develop concepts.
INVESTIGATE	
POTENTIAL AREA OF DIFFICULTY Fear of failure/poor self-esteem/fear of taking risks Understanding Time and Chronology Fine/Gross Motor Difficulties Short Term Memory	STRATEGIES <ul style="list-style-type: none">• Model the speculation of a range of answers/ideas.• Repeat and record suggestions from the students and refer back to them• Practice recording the passing of time, establish classroom routines that draw the students’ attention to the measurement of time.• Teach and practice the language of time.• Allow time to practice handling new equipment.• Allow additional time for drawing diagrams, making models etc.• Give students the option to explain work orally or in another format.• Provide the student with visual clues/symbols which can be used to remind him/her of various stages of the investigation.
TAKE THE NEXT STEP	
POTENTIAL AREA OF DIFFICULTY Developing Ideas Communicating Ideas	STRATEGIES <ul style="list-style-type: none">• Keep ideas as simple as possible, use visuals as a reminder of earlier ideas. Discuss ideas with the whole group.• Repeat and record suggestions from students and refer back to them.• Encourage work in small group and in pairs.• Ask students to describe observations verbally or non-verbally using an increasing vocabulary.• Display findings from investigations; sing, do drawings or take pictures.• Use ICT: simple written or word-processed accounts taking photographs, making video recordings of an investigation.
REFLECTION	
<ul style="list-style-type: none">• Did I take into account the individual learning needs of my students with SEN? What differentiation strategies worked well?• Did I ensure that the lesson content was clear and that the materials used were appropriate?• Was I aware of the pace at which students worked and the physical effort required?• Are there cross curriculum opportunities here?• Are the students moving on with their skills?• Did the students enjoy the activity?	
More strategies, resources and support available at www.sess.ie	

