

GSHPA

Teaching Scheme of Work

Upper Key Stage 1

Year 2

The National Ground Source Heat Pump Association has compiled a Scheme of Work for Schools entitled

'Our Earth -Use It; Don't Abuse It.'

It is aimed at teaching pupils about the importance of using the earth as a renewable energy source - and not abusing it using non-renewable energy sources.

The collective schemes are aimed at school age pupils in Key Stages 1,2, 3 and 4.

The rationale for selecting Upper Key Stage 1, Year 2 for this scheme of work is that they are the oldest group in the infant Key Stage and therefore are more like to understand the concepts.

This is a 6 Lesson Programme of Work which can easily be expanded into other subject areas.

**This Scheme of Work focuses on the following aspects of the
English National Curriculum Guidance.
It can be adapted to the Welsh and Scottish Curriculum Guidance.**

Citizenship (Primary Focus of this Scheme of Work)

Pupils learn about themselves as developing individuals and as members of their communities.

Pupils are taught to realise that people and other living things have needs, and that they have responsibilities to meet them.

Pupils are taught what harms their local, natural and built environments and about some of the ways people look after them.

Pupils take part in discussions such as topics ofglobal concern.

Pupils consider social dilemmas that they come across..... such as simple environmental issues.

Pupils will be taught how to make simple choices that improve their health & wellbeing.

Science 2

Sc2/1 Working Scientifically

Sc2/1.4 Identifying & Classifying & Sc2/1.6 Gathering & recording data to help in answering questions.

Sc2/2.3 Animals Including Humans

Sc2/2.3b Finding out about and describe basic needs ... of humans, for survival (Water, Food & Air)

It is not exhaustive and there are many more cross curricular links involved.

Guidance on following the scheme of work for non-teachers:



Each session can be taught within the Citizenship national curriculum.



This is a 6 lesson Programme of Study (POS) which, on average, is a half-term.



Expected Learning Outcomes – this is what you want the children to develop understanding of within the lesson.



Method / Activity – this is how the teacher will divide the lesson time of an hour.



Suggested Resources – these are resources suggested to the teacher that will allow him/her to deliver the lesson. These are suggestions and staff may decide they have something more suitable for them. Follow links and some are within the attachments.



Differentiation – the main activity is the ‘core’ lesson aimed at the majority of the pupils in the group. The ‘support’ suggestions are for the less able pupils and the ‘extension’ suggestions are for the more able once they have completed the core activities.



Assessment Opportunities – teachers may choose to do a ‘teacher assessment’ on the levels the individual pupils are working within based on the area mentioned from within the lesson. They may also elect for pupils to carry out a self-assessment.



National Curriculum Level Descriptors – there are no level descriptors within this scheme of work but the main National Curriculum references are included. However, as guidance, Level 2 is the average level for when pupils leave Year 2, or infants. (Key Stage 1 – ages 3 – 7 years)



Homework Opportunities – these are ideas and suggestions for homework activities to extend the lesson. Lesson 4 homework activity forms the start of Lesson 5. They are encouraged as they allow for family inclusion and therefore may generate external interest.



Key Words / Phrases – these are subject specific to the lesson and ones which are often unique to the topic.



Cross Curricular – these are other national curriculum subjects that are inclusive within the lesson but not required to be recorded in great detail.

Long Term Plan

Making Choices with Energy

Week/Lesson 1 Where Does Energy Come From? – including food.

Week/Lesson 2 How We Use and Mis-use Energy? – including food.

Week/Lesson 3 Our Sun

Week/Lesson 4 Our Air

Week/Lesson 5 Our Heat

Week/Lesson 6 Making Choices – including Who Wants to be a Millionaire Quiz

Extension:

Visit a renewable energy venue such as:

Centre for Alternative Technology, Machynlleth, <https://www.cat.org.uk>

The National Self Build and Renovation Centre, Swindon <https://www.nsbrc.co.uk>

Ongoing: Build a Classroom / Whole School Display

Our World – Use It; Don't Abuse It.

Medium Term Plan

Week/Lesson 1 Where Does Energy Come From? – including food.

	Expected Learning Outcome <i>To develop understanding of:</i>	Method/activity <i>Assume 1 hour per lesson</i>	Suggested Resources <i>See Week 1 Attachment</i>	Differentiation <i>Throughout this module teacher encouragement for pupils to make increasingly independent contributions.</i>	Assessment Opportunities
Week / Lesson 1	<p>How to take part in discussions.</p> <p>How to listen to, and work with, other people.</p> <p>The basic needs of animals, including humans.</p>	<p>Teacher to brainstorm and ask pupils for their suggestions of where energy comes from and what it does.</p> <p>Ask them for 3 types of energy that they know about. Note the 3 most popular answers given. What does each of the 3 types do?</p> <p>Watch https://www.youtube.com/watch?v=jwx18Ucr4M (1m 29s) for ideas of types of energy. (15 minutes)</p> <p>Pupils to work in two's or small groups to think about and record where the types of energy they use for and by themselves, that animals use and the ones they use to power items at home and in school, comes from. They should include food and some of the following: Wind, Coal, Oil, Sun, Water & Gas (30 minutes)</p>	<p>https://www.youtube.com/watch?v=jwx18Ucr4M</p> <p>https://www.twinkl.co.uk/resource/junior-senior-infants-energy-electricity-powerpoint-roi-sc-63</p> <p style="text-align: center;">Week 1 Resources Folder</p>  <p style="text-align: center;">Homework Opportunities</p> <p>Pupils to record the types of energy they use and put them in order of what they consider to be the most to least important.</p> <p style="text-align: center;">Make energy type dominoes</p>	<p>Core As in method/activity.</p> <p>Support Record pictorially and/or via discussion where staff acts as scribe. Use less</p> <p>Extension Pupils to discuss what they think their world would be like without energy.</p> <p>Cross Curricular English Maths</p>	<p>Can the pupils explain where energy they use comes from?</p> <hr/> <p>National Curriculum Citizenship <i>2a How to take part in discussions.</i> <i>4b How to listen to, and work with, other people</i></p> <p>Science <i>SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for survival (Water, food & air).</i></p>

		<p>Collective discussion and tally chart to collate the information and discuss the most popular and least popular energies used. Ask the pupils whether they think that the statement <i>'Energy gives people, animals and appliances the power to work'</i> is true. Use Twinkl resource sheets in Week 1 Resources to begin display work. <i>(15 minutes)</i></p>	<p>Key Words/Phrases</p> <p>Energy Food Wind Coal Oil Sun Water Gas</p>		
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Medium Term Plan

Week / Lesson 2 How We Use and Mis-use Energy? – including food.

	Expected Learning Outcome <i>To develop understanding of:</i>	Method/activity <i>Assume 1 hour per lesson</i>	Suggested Resources <i>See Week 2 Attachment</i>	Differentiation <i>Throughout this module teacher encouragement for pupils to make increasingly independent contributions.</i>	Assessment Opportunities
<p>Week / Lesson 2</p>	<p>How to take part in discussions.</p> <p>How to listen to, and work with, other people.</p> <p>Making simple choices to improve health and wellbeing.</p> <p>Making real choices.</p> <p>The basic needs of animals, including humans.</p>	<p>Pupils to recap the types of energy they use. Explain that it is important to have the right energy for the job it is doing – for example food energy does not power an electric light. Explain that the correct type of energy is very important and show https://www.bbc.co.uk/bitesize/clips/z2pxpv4 song (1m15s) about 5 a day. Ask pupils what to think about unhealthy options and why they might not be a good idea if they have too many. Explain that this lesson is about what might happen if we mis-use the types of energy we use. <i>(15 minutes)</i></p> <p>Making Choices: Pupils to work in pairs or small groups to decide how they use each energy for and what they</p>	<p>https://www.bbc.co.uk/bitesize/clips/z2pxpv4</p> <p>https://www.bbc.co.uk/northernireland/schools/411/uptoyou/healthy/foodfuel.shtml</p> <p>Energy Week 2 worksheet in folder.</p> <p>https://www.youtube.com/watch?v=khZrs-UBq28&list=PLrlsR6KU6y2a6s3oL-mSEItbredNpcVPd&index=26</p>	<p>Core As in method/activity.</p> <p>Support Provide assistance when considering and recording comparisons. Explore 2 instead of 3 options.</p> <p>Extension Explore a 4th energy as per the 3 in core.</p> <p>https://www.youtube.com/watch?v=iubWN1cnwIs (2m 47s)</p>	<p>Can the pupils explain the differences between renewable and non-renewable energy sources?</p> <hr/> <p>National Curriculum Citizenship <i>2a How to take part in discussions.</i> <i>3a How to make simple choices to improve their health and wellbeing.</i> <i>4b How to listen to, and work with, other people.</i> <i>5d Making real choices.</i></p> <p>Science <i>SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for</i></p>

		<p>think would happen if they mis-used it. Use Energy worksheet in Week 2 resources folder.</p> <p>Examples could include food & water as fuel https://www.bbc.co.uk/northernireland/schools/4_11/uptoyou/healthy/foodfuel.shtml but it can make us unhealthy, electricity and electrocution, sun for lights and heat but it can burn us dehydrate us or cause eye damage, using coal or gas but it causes pollution, using wood and the negative effects on the planet.</p> <p>Let the groups try to work out and record their thoughts and ideas for 3 categories. (25 minutes)</p> <p>Teacher led whole class plenary sharing their thoughts and that all energy needs to be used correctly or it can be harmful. Conclude by touching upon the need for exercise as well as food to keep us warm, fit and healthy.</p> <p>Watch https://www.youtube.com/watch?v=khZrs-UBq28&list=PLrlsR6KU6y2a6s3oL-mSEItbredNpcVPd&index=26 (1m 35s) as a conclusion to this lesson and introduction to the next one. (15 minutes)</p>	<p>Homework Opportunities</p> <p>Record a healthy choice they make at the weekend when they had the option of an unhealthy option – e.g. fruit instead of biscuit, sweet or packet of crisps.</p> <p>Applying sun cream before going outside.</p> <p>Key Words/Phrases</p> <ul style="list-style-type: none"> Food Energy Choices Safety Electricity Electrocution Coal Gas Wood Damage Heat Light Healthy Unhealthy 	<p>Cross Curricular</p> <p>English Maths</p>	<p><i>survival (Water, food & air).</i></p>
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Medium Term Plan

Week / Lesson 3 Our Sun

	Expected Learning Outcome <i>To develop understanding of:</i>	Method/activity <i>Assume 1 hour per lesson</i>	Suggested Resources <i>See Week 3 Attachment</i>	Differentiation <i>Throughout this module teacher encouragement for pupils to make increasingly independent contributions.</i>	Assessment Opportunities
Week / Lesson 3	<p>How to take part in discussions.</p> <p>How to listen to, and work with, other people.</p> <p>Making simple choices to improve health and wellbeing.</p> <p>Making real choices.</p> <p>The basic needs of animals, including humans.</p>	<p>Recap last lesson plenary video on keeping warm. As children what keeps us warm? Watch https://www.bbc.co.uk/bitesize/clips/z46mhyc (1m 28s) which explains that all energy comes from the sun.</p> <p>Recap that the sun can also harm us by burning us, dehydrating us or damaging our eyes but the video suggest it is essential for life.</p> <p>(15minutes)</p> <p>Working in pairs for small groups, use The Sun Factsheet from Week 3 Resources folder to individually record the importance of the sun in as many areas of life that the pupils can think of.</p>	<p>https://www.bbc.co.uk/bitesize/clips/z46mhyc</p> <p>The Sun Factsheet from Week 3 Resources folder</p>	<p>Core As in method/activity.</p> <p>Support How do pupils use sun in their everyday lives? Teacher assistance and grouping of pupils.</p> <p>Extension Offer 2 or 3 less obvious examples for pupils to take back to how the sun is involved in their processes. Example crisp packets as in the video.</p>	<p>Can the pupils listen to, and work with, other people?</p> <hr/> <p>National Curriculum Citizenship <i>2a How to take part in discussions.</i> <i>3a How to make simple choices to improve their health and wellbeing.</i> <i>4b How to listen to, and work with, other people.</i> <i>5d Making real choices.</i></p> <p>Science</p>

		<p>Refer back to the video and suggest examples such as fuel for vehicles. Encourage pupils to look at everyday objects such as a pencil, book, piece of fruit or piece of paper and think about how the sun could have been involved in their production. <i>(25 minutes)</i></p> <p>Share pupils work and introduce inclusion of solar panels, light, heat and shadows if not already discussed. Share interesting facts such as: The Sun is the only star we see in the day. The sunlight we see on earth left the sun between 7 and 8 minutes ago. Conclude that there can be no life on earth without the sun. <i>(15 minutes)</i></p>	<p>Homework Opportunities</p> <p>Find out how many people they know, or live near, uses solar panels.</p>	<p>Cross Curricular English</p>	<p><i>SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for survival (Water, food & air).</i></p>
		<p>Key Words/Phrases</p> <p>Sun Solar Sunlight Heat Shadows Star</p>			

Medium Term Plan

Week / Lesson 4 Our Air

	Expected Learning Outcome <i>To develop understanding of:</i>	Method/activity <i>Assume 1 hour per lesson</i>	Suggested Resources <i>See Week 4 Attachment</i>	Differentiation <i>Throughout this module teacher encouragement for pupils to make increasingly independent contributions.</i>	Assessment Opportunities
Week / Lesson 4	<p>How to take part in discussions.</p> <p>How to listen to, and work with, other people.</p> <p>Making simple choices to improve health and wellbeing.</p> <p>Making real choices.</p> <p>The basic needs of animals, including humans including what Air Quality means and how we can improve it.</p>	<p>Recap on the conclusion of the last lesson that there can be no life on earth without the sun.</p> <p>Ask pupils what else they think life depends upon -list Air, Water, Nutrients, Shelter and Sleep</p> <p>Explain that this lesson will be about air and they will look at how important it is for it to be clean air. Introduce the word ‘pollution’ and discuss pupil’s understanding of what they think air pollution might be. (15 minutes)</p> <p>Watch https://www.youtube.com/watch?v=fephtPt6wk (6m 9s) and ask pupils to try to remember: What is air pollution? What causes it? How does it affect us? How can we stop it? What will happen if we do not stop it?</p>	<p>https://www.youtube.com/watch?v=fephtPt6wk (6m 9s)</p> <p>Whiteboards and pens.</p> <p>Homework Opportunities Pupils to make a poster which shows what type of heating system they use at home. It may be more than one – example oil with wood-burner or open fire. This will be required for the start of the next lesson.</p>	<p>Core As in method/activity.</p> <p>Support Encourage involvement in brainstorm.</p> <p>Extension Increase number of things they could look into from 5.</p>	<p>Can pupils explain how air quality is a basic need?</p> <p>National Curriculum Citizenship 2a How to take part in discussions. 3a How to make simple choices to improve their health and wellbeing. 4b How to listen to, and work with, other people. 5d Making real choices. 5g Consider simple environmental issues.</p> <p>Science SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for survival (Water, food & air).</p>

		<p>Make a whole class brainstorm of pupils answers. Watch the video again and pause where appropriate to complete the brainstorm gaps. <i>(25 minutes)</i></p> <p>Pupils to record on whiteboards how they think they can make a difference to the air quality where they live? For example, replace travelling in cars by walking or cycling. Do not waste energy by switching lights off etc. Hold up whiteboards so that teacher can list 5 things they have suggested they could do. <i>(15 minutes)</i></p>	<p>Key Words & Phrases Air Quality Fossil Fuels Global Warming Pollution</p>		
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		<p>Poster.pdf%2A~hmac=9dfb63b6bf8beac6f01cef3f849ea52cacae4dc5d4c5444c45b07111e9364fc6</p> <p>Heat can be taken from the earth in many ways – biomass where trees are cut down but need to be replaced and geothermal where the hot water from deep underneath the earth is used to heat homes and water in Iceland but not many other places on earth.</p> <p>Many people now use heat pumps where the heat from the air, water or ground is taken out and put into a machine that looks like a fridge and that sends the heat into properties. Watch Heat Pumps MP4 file in Week 5 resources (29s)</p> <p>Lots of people use solar energy, wind energy and/or heat pumps to heat their homes and take out coal, gas and oil. Not many use manure or wind turbines for their homes.</p> <p>Pupils to make a poster to record which type of renewable is the one they would be most likely to use to replace a fossil fuel at home, and their reasons why. Some may already have renewable. Discourage manure! <i>(40 minutes)</i></p> <p>Discussions about whether pupils think that renewable heating is a good idea or not and whether they think renewable energy is good for the planet. Display posters. <i>(10 minutes)</i></p>	<p>Homework Opportunities</p> <p>Which renewable/s do pupils think would work on their homes and what would they replace – example gas or oil for a heat pump and solar panels?</p> <p>Key Words & Phrases</p> <p>Biomass Geothermal Heat Pumps Hydroelectric Solar Tidal Wind Biomass</p>		<p><i>SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for survival (Water, food & air).</i></p>
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Medium Term Plan

Week / Lesson 6 Making Choices – including Who Wants to be a Millionaire Quiz

	Expected Learning Outcome <i>To develop understanding of:</i>	Method/activity <i>Assume 1 hour per lesson</i>	Suggested Resources <i>See Week 5 Attachment</i>	Differentiation <i>Throughout this module teacher encouragement for pupils to make increasingly independent contributions.</i>	Assessment Opportunities
Week / Lesson 6	<p>The benefits of using Renewable Energy Sources when addressing Global warming and Climate change.</p> <p>Consider the advantages and disadvantages within all energy types.</p> <p>How to gather information to present a point of view.</p>	<p>Recap previous lessons and invite pupils to share one thing they have learned during the past 5 lessons. Record some examples for whole group to see.</p> <p>Divide whole group into 4 smaller groups.</p> <p>Explain that they are going to write 5 quiz questions using the information of the last lessons about making the right choices to protect the earth.</p> <p>It can be a Yes/No quiz or a question with multiple choice quiz.</p> <p>Aim for 5 questions from each group and include something from each lesson.</p> <p>Put lesson headings on display as a reminder:</p> <p style="padding-left: 40px;">1. Where Does Energy Come From – including food.</p>	<p style="text-align: center;">Who wants to be a Millionaire PowerPoint in Week 6 Resources.</p> <p style="text-align: center;">(Certificates in Week 6 folder or teacher can make their own).</p> <p style="text-align: center;">Homework Opportunities</p> <p>Pupils could make their quiz questions into an actual quiz using cards etc.</p> <p style="text-align: center;">Key Words / Phrases All used in previous lessons</p>	<p>Core As in method/activity.</p> <p style="color: red;">Support Grouping of pupils.</p> <p style="color: red;">Encouragement to offer answers in Millionaire Quiz.</p> <p style="color: green;">Extension Pupils to include what types of employment opportunities they think working in the renewable industry could bring such as the manufacturers of the equipment, installers of the equipment, the drillers and ground workers for heat pumps etc.</p>	<p>Are pupils able to provide correct answers to the Who wants to be a Millionaire Quiz?</p> <p>Can pupils provide evidence which allows the teacher to level them against the Level Descriptors shown below?</p> <p>National Curriculum Citizenship</p> <p><i>2a How to take part in discussions.</i></p> <p><i>3a How to make simple choices to improve their health and wellbeing.</i></p> <p><i>4b How to listen to, and work with, other people.</i></p> <p><i>5d Making real choices.</i></p> <p><i>5g Consider simple environmental issues.</i></p>

		<p>2. How We Use and Mis-use Energy – including food.</p> <p>3. Our Sun</p> <p>4. Our Air</p> <p>5. Our Heat</p> <p>(15 minutes)</p> <p>Pupils to work in their groups to use their learning of the last 5 lessons to make their quiz.</p> <p>(30 minutes)</p> <p>Play PowerPoint ‘Who Wants to Be a Millionaire Quiz’ as a whole class and select one or two quiz questions to answer together.</p> <p>Make pupils aware of World Earth Day – usually in April.</p> <p>(15 minutes)</p>		<p>Science</p> <p>SC2/2.3b Pupils find out about and describe the basic needs of animals, including humans, for survival (Water, food & air).</p>
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