



Water: Nature's Driving Force (Biology and Chemistry)



Overview and rationale:

Year 4's chosen charity is WaterAid and this plays a key contextual role for our children's engagement in not only this topic but when opening their eyes to the **responsibility** they have in supporting those less fortunate and in looking after and **respecting** our environment. The children here take their first deeper look into changing states (melting, freezing, solids, liquids and gases) and this links in with learning about the water cycle, knowledge which is consolidated and built upon in Year 5. The children learn about the part rivers and seas play in this cycle, enhancing their knowledge of rivers, seas and hills and mountains around the UK as they do so. Investigating heating and cooling and the effect these processes have on matter furthers our children's enquiry skills and enhances their chances of being successful young scientific investigators!

NATIONAL CURRICULUM OBJECTIVES

1. compare and group materials together, according to whether they are solids, liquids or gases
2. observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
3. identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

SCIENCE LEARNING STATEMENTS

Area of Learning	Knowledge and Skills
Scientific Enquiry and applying knowledge in context	I can raise my own relevant questions about the world around me and begin to look for answers.
	I am given a range of scientific experiences including different types of scientific enquiry to answer questions.
	I can start to make my own decisions about the most appropriate type of scientific enquiry I might use to answer questions and give justifications.
	I can set up simple practical enquiries, comparative and fair tests. I can recognise when a simple fair test is necessary and help decide how to set it up.
	I can talk about criteria for grouping, sorting and classifying; use simple keys and explain how they should be used.
	I can recognise when and how secondary sources might help me to answer questions that cannot be answered through practical investigations. I can use a selection of resources.
	I can make systematic and careful observations. I can make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.
	I can look for naturally occurring patterns and relationships; decide what data to collect to identify them.
	I can take accurate measurements using standard units, learn how to use a range of equipment, such as data loggers and thermometers, appropriately.
	I can collect and record data from their own observations and measurements in a variety of ways: notes, bar charts, tables. I can select and use the most appropriate standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse the data.
	I can look for changes, patterns, similarities and differences in their data in order to draw accurate conclusions and answer further questions
	I can confidently use relevant scientific language to discuss their ideas and communicate their findings, in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions.
I can identify new questions arising from my data, making predictions for new values within or beyond the data I have already collected and finding ways of improving what I have already done.	

Possible 'higher order' questioning

Remember	Can you name some of the UK's rivers? Where is the source?
Understand	How does condensation work? What about evaporation? Does the sea evaporate? Why doesn't it all evaporate?
Apply	What causes each change of state? Can you give some examples?
Analyse	What can we infer from rock and land formations in the desert which show that there used to be rivers flowing through? Why is it that some countries have lots of water and others don't? Why is WaterAid needed?
Evaluate	What would the effect be if the Earth's climate changed and our new temperature was below zero degrees Celsius? What would be the impact if it was 100 degrees Celsius?
Create	Can you produce an investigation which proves the boiling point and freezing point?

KEY VOCABULARY

Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle

GEOGRAPHY LEARNING STATEMENTS

Area of Learning	Knowledge and Skills
Human and physical: enquiry skills and communication	I can describe & understand key aspects of: physical geography, including rivers and mountains.
	I can describe the water cycle using a diagram.
	I can describe key aspects of human geography including types of settlement and land use, economic activity and the distribution of some natural resources of the countries studied.
	I can communicate geography information in a variety of ways, including through maps and writing at length.

GEOGRAPHICAL VOCABULARY

mountains, hills, United Kingdom, Great Britain, condensation, evaporation, precipitation, collection, change/ effect, interaction between physical and human processes, formation, interconnected and change over time, source, tributary, *rivers and place names in the UK as appropriate*

ART AND DESIGN

Exploring and Developing

Exploring and developing ideas	Select and record from first hand observation, experience and imagination and explore ideas for different purposes. Question and make thoughtful observations about starting points and select ideas to use in their work. Explore the roles and purposes of artists, craftspeople and designers working in different times and cultures.
Evaluating and developing work	Compare ideas, methods and approaches in their own and others' work and say what they think and feel about them. Adapt their work according to their views and describe how they might develop it further.

Textiles/Collage

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
-To develop techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design. -To create sketch books to record their observations and use them to review and revisit ideas -To improve their mastery of art and design techniques, including drawing, painting and collage with a range of materials.	-Match the tool to the material -Selects resources for their collage based on the suitability of the colour, shape, texture and pattern suiting the purpose. -Combine skills more readily -Choose collage or textiles as a means of extending work already achieved -Cut and tear materials with some accuracy.	-Know that a sketchbook can be used to collate ideas and begin a planning process. -Know how to sort and group materials for different purposes e.g. colour, texture, purpose, form -Know how to care for equipment and use them safely. -Know how to produce more intricate patterns and textures. -To know that materials can be layered to give different effects.	Collage, form, tools and names, texture, reclaimed, structure, sculpture, object, tear, fold, crumple, strengthen, strong, weak, crumple, fold, arrange, layer, opaque, translucent, transparent, cut tear, crease, score, fray, mosaic.

Artist/Style/Activities

Monet/Anne Powell: recreate Monet's 'waterlilies' in the style of Anne Powell (collage)

'CORE' KNOWLEDGE

1) I know water is precious and should not be wasted.

2) I know that the availability of clean water is different throughout the world and I know the factors that influence this.

3) I know that the three different states of matter are solids, liquids and gases.

4) I know what the water cycle is.

5) I know the main rivers and mountain ranges in the UK.

6) I know that Monet was an impressionist and he used water as inspiration for his artwork.

'ADDITIONAL' KNOWLEDGE

a) I know that a lot of the time, we can take clean water for granted and can list ways that we sometimes waste water - e.g. brushing teeth etc.

b) I know many ways in which water is used on a daily basis in first world countries: washing hands, drinking water, cooking, cleaning ourselves and our homes.
c) I know a number of ways to reduce water usage in our day to day lives e.g. showers not baths, turn water off when brushing teeth, collecting water to water plants etc.

a) I can use an atlas/map to identify continents and countries that do not have much rainfall (near equator), contributing to the lack of available water. I can name some of these countries.

b) I know what children in two other parts of the world, where water is scarce (Africa / India), do in order to obtain and conserve water.

c) I know that *WaterAid* is a charity that helps people all over the world access clean water.

a) I know that all objects are made of molecules that have different properties and react in different ways through heating and cooling and can use a thermometer to measure temperature.

DO: Observe and measure: MEASURING TEMPERATURE
REVIEW: Evaluate: DUNKING BISCUITS

b) I can list the properties of solids, liquids and gases and the behaviour of the molecules in each state.

c) I know that water freezes at 0 degrees Celsius and boils at 100 degrees Celsius.

a) I know that the water we see on Earth today has been around since the beginning of time and is constantly recycled.

b) I can use and understand key terms such as; evaporation, condensation, precipitation and collection.

c) I know what causes evaporation (heat) and the best conditions to make this happen.

PLAN: Set up enquiry: DRYING MATERIALS

a) I know what UK (United Kingdom) stands for and which countries make up the UK (England, Scotland, Wales, Northern Ireland). I can locate and identify these on a map / atlas.

b) I can use an atlas / map to locate the UK's largest rivers – the River Severn (Wales), River Trent (Staffordshire) and the River Thames (London).

c) I can use an atlas / map to locate the UK's largest mountain ranges – the Grampian range (Scotland), the Cumbrian mountains (Lake district) and the Pennine mountain range (Yorkshire).

a) I know who Claude Monet is, when he was alive (14th November 1840-5th December 1926) and where he lived (Giverny).

b) I know what Impressionism is (a style or movement in painting originating in France in the 1860s, characterized by a concern with depicting the visual impression of the moment, especially in terms of the shifting effect of light and colour) and understand how the artists of this movement used light in their work.

c) I know that Claude Monet painted a series of Waterlily paintings, using many colours to give the impression of colour.

School Value	Topic relevance: How/when/where/why is it needed?
Resilience	- Hundreds of thousands of people across the world have to show incredible resilience just to get access to water and even then it isn't always safe to drink.
Respect	- We must show respect for our environment and not waste water, knowing what we know. - 'Water Aid' shows us how important it is to look after and respect everyone and everything on our planet.
Responsibility	- We show responsibility when looking after our environment and supporting charities like Water Aid. We have a responsibility to be considerate to others and to our world. It is our responsibility to not waste water and realise that little things (like turning off the tap whilst brushing our teeth) make a big difference.
Happiness	- Happiness is shown in different ways. Just having access to clean water gives some people great joy whereas we can often take it for granted.
Kindness	- We show our kindness in many ways and supporting Water Aid and raising awareness of the charity is just one of them.
Pride	- We can take great pride in the kindness, respect and responsibility that we show for others through respecting our environment and supporting Water Aid and other charities, and by not wasting water.

Possible Enrichment activities (including trips/visitors, etc.)	A walk for water!
	Now press play audio lesson.

Year Group Charity

The *Water Aid* heroes...I can tell you what they do and why!

MUSIC

Controlling sounds through Singing

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<ul style="list-style-type: none"> - Pupils should be taught to play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing fluency, control and expression - Sing songs from memory with accurate pitch. 	<ul style="list-style-type: none"> - Re-join the song if lost - Listen to the group when singing - Sing a range of songs in tune with expression as part of a group or individually. - Perform with an awareness of tempo and dynamic. - Evaluate their own singing and make improvements. 	<ul style="list-style-type: none"> - Know that a solo singer makes a thinner texture than a large group 	<ul style="list-style-type: none"> texture (layers of sound), solo, pitch, control, expression, tempo, dynamics, rap

Controlling sounds by Playing (and Performing)

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<ul style="list-style-type: none"> - Play instruments and perform in solo and ensemble contexts. Soundscapes with un tuned percussion, body percussion - Perform with control and awareness of what others are playing. 	<ul style="list-style-type: none"> - Treat instruments carefully and with respect. - Rehearse and perform their part within the context of the song. - Listen to and follow musical instructions from a leader. - Present a musical performance designed to capture the audience. - Communicate the meaning of the words and clearly articulate them. -Talk about the best place to be when performing and how to stand or sit. - Record the performance and say how they were feeling, what they were pleased with what they would change and why. 	<ul style="list-style-type: none"> - Know and be able to talk about: <ul style="list-style-type: none"> *The instruments used in class *How performing is sharing music with other people, an audience - it can be to one person or to each other. *how you need to know and have planned everything that will be performed. *How lyrics must be sung or rapped clearly and with confidence *How a performance can be a special occasion and involve an audience including of people you don't know *How a performance is planned and different for each occasion *How it involves communicating feelings, thoughts and ideas about the song/music. 	<ul style="list-style-type: none"> names of instruments being played, solo, ensemble, orchestra, audience, rehearse, leader, conductor, soundscape, body percussion, record, video, playback, clear feedback, perform

Creating and developing musical ideas (Improvisation and Composing)

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<ul style="list-style-type: none"> - Improvise and compose music for a range of purposes using the inter-related dimensions of music - Begin to use notation to record compositions in a small group or individually 	<ul style="list-style-type: none"> - Improvise using instruments in the context of a song they are learning to perform. - Copy Back: Listen and sing back melodic patterns - Play and Improvise: Using instruments - Plan and create a section of music that can be performed within the context of the song. - Talk about how it was created. - Listen to and reflect upon the developing composition and make musical decisions about pulse, rhythm, pitch, dynamics and tempo. -Record the composition in any way appropriate that recognises the connection between sound and symbol (e.g. graphic/pictorial notation). - Create rhythmic patterns with awareness of timbre and duration. 	<ul style="list-style-type: none"> - Know and be able to talk about: <ul style="list-style-type: none"> *Improvisation - is making up your own tunes on the spot *When someone improvises, they make up their own tune that has never been heard before. It is not written down and belongs to them. - Know and be able to talk about: <ul style="list-style-type: none"> * A composition: music that is created by you and kept in some way. It's like writing a story. It can be played or performed again to your friends. - Know different ways of recording compositions (letter names, symbols, audio etc.) 	<ul style="list-style-type: none"> names of instruments being played, solo, ensemble, orchestra, audience, rehearse, leader, conductor, improvisation, composition, tempo, dynamics, timbre, texture, pulse, rhythm, body percussion, body parts, silent, soundscape, body percussion Notation: rhythm, tap a rhythm, pause, rest symbol, notation

Responding and reviewing (Appraising)

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<ul style="list-style-type: none"> - Appreciate and understand a range of high-quality live and recorded music drawn from different traditions and from great composers and musicians. - Explain why silence is often needed in music and explain what effect it has. - Identify and describe the different purposes of music 	<ul style="list-style-type: none"> - Identify and describe the different purposes of music. - Confidently identify and move to the pulse. - Talk about the musical dimensions working together in the songs e.g. if the song gets louder in the chorus (dynamics). - Talk about the music and how it makes them feel. - Listen carefully and respectfully to other people's thoughts about the music. - When talking try to use musical words. - Listen to several layers of sound (texture) and talk about the effect on mood and feelings. - Identify orchestral family timbres. - Identify cyclic (repeated) patterns. 	<ul style="list-style-type: none"> - Know 5 songs from memory and who sang them or wrote them (across the year) - Know the style of the 5 songs. - Choose one song and be able to talk about: <ul style="list-style-type: none"> *Some of the style indicators of that song (musical characteristics that give the song its style) *The lyrics: what the song is about *Any musical dimensions featured in the song and where they are used (texture, dynamics, tempo, rhythm and pitch) *Identify the main sections of the song (introduction, verse, chorus etc.) *Name some of the instruments they heard in the song -Know how pulse stays the same but rhythm changes in a piece of music. -Use more musical dimensions vocabulary to describe music – duration, timbre, pitch, dynamics, tempo, texture, structure, rhythm. 	<ul style="list-style-type: none"> Pulse, duration, timbre, pitch, dynamics, tempo, texture, structure, rhythm, metre, riff, ostinato, melody, harmony, orchestral family timbres, cyclic patterns, repeating phrases, different pitches, fast moving, melodic phrases, chords, rap

Listening and applying knowledge and understanding (Theory)

National Curriculum	Additional Skills	Knowledge	Key Vocabulary
<ul style="list-style-type: none"> - Begin to develop an understanding of the history of music. - Understand and explore how music is created, produced and communicated, including through the inter-related dimensions: pitch, duration, dynamics, tempo, timbre, texture and structure. - Begin to use notation to record and interpret sequences. 	<ul style="list-style-type: none"> - Combine sounds expressively (all dimensions). - Be able to independently record what they create using a symbol format.] 	<ul style="list-style-type: none"> - Know and be able to talk about: <ul style="list-style-type: none"> *How pulse, rhythm and pitch work together *Pulse: Finding the pulse – the heartbeat of the music *Rhythm: the long and short patterns over the pulse *Pitch: High and low sounds that create melodies *How to keep the internal pulse -Know the difference between pulse and rhythm -Musical Leadership: create musical ideas for the group to copy or respond to -Know that sense of occasion affects performance. -Describe different purposes of music in history/ other cultures. 	<ul style="list-style-type: none"> Names of some composers, long and short patterns, high, low, musical ideas, notation, sequences, pulse, duration, timbre, pitch, dynamics, tempo, texture, structure, rhythm, orchestral family timbres, cyclic patterns, repeating phrases, different pitches, fast moving, melodic phrases, rap

Composers/Musicians/Artists/Styles

The Water cycle song (Sing Up)

Genre of the half term – Rap