

Science, Art and Writing (SAW)

How to get started.

Choose your theme.

This may be a science curriculum topic that you would like to cover (e.g. magnetism), or another topic of interest (for example, the sea).

Ready to go

You are now ready to go. Children have the most incredible imaginations - take risks with them. Don't impose your own ideas.

Key words

Make a list of key words that are relevant to your chosen theme.

THE SAW PROCESS

Explore your theme

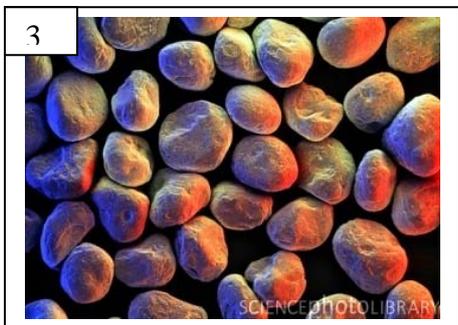
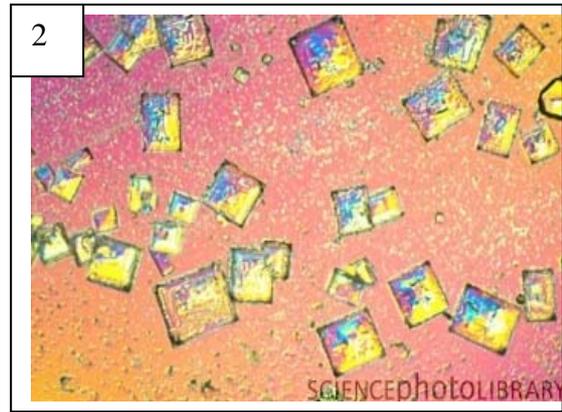
Define your learning objectives and to design your lessons. Images can be used in a variety of ways, ration the images – use them to gain excitement and interest at intervals throughout the lesson.

Search the internet for images

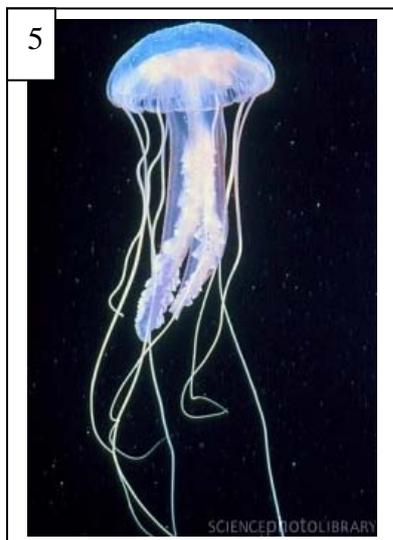
Search for high quality scientific images that illustrate the different facets of your theme. You will find that this is addictive. Use the Science Photo Library website (www.sciencephoto.com). It has an excellent search engine and fantastic images.

Choose 6 -8 images

Prune out any that look too obvious, that do not illustrate the science of your theme and/or that are not inspirational. Choose images that are visually exciting and are likely to provide inspiration for
Science, Art and Writing.



THE SEA
Mundesley First School
Norfolk



PHOTOGRAPHS

1. Seaweed

A patch of dark green seaweed exposed at low tide. The swollen round structures are air bladders which keep the seaweed buoyant when submerged. The tough leather fronds, which are anchored to rocks in the intertidal zone of the shore, can survive repeated bashing by waves during rising tides. Seaweeds belong to the primitive group of plants called algae.

SIMON FRASER / SCIENCE PHOTO LIBRARY

2. Salt crystals

Light micrograph of crystals of table salt (sodium chloride). This compound forms regular cubic crystals. It is used as a seasoning and preservative for a range of foods.

ASTRID & HANNS-FRIEDER MICHLER / SCIENCE PHOTO LIBRARY

3. Sand

Sand particles from a beach. Sand is formed from sedimentary rock, usually sandstone. Particle size ranges from 1/16mm to 2mm. Sand may be accumulated by wind action or deposited by water action in marine, brackish or freshwater environments.

SCIENCE PHOTO LIBRARY

4. Nautilus

The X-ray picture is a Nautilus; its bony body is on the outside as a shell. Inside is the soft bodied animal. In order to move, the Nautilus draws water into the shell and then pushes it out, making use of jet propulsion to move it forward. Nautilus are predators and use their tentacles to capture and eat shrimp and small fish.

SCIENCE PHOTO LIBRARY

5. Jellyfish (*Pelagia noctiluca*)

Jellyfish are primitive creatures whose bodies are mostly composed of water. They do not have bones or a brain. They are not fish at all - they are invertebrates. They capture their prey using tentacles which have poisonous stinging cells. When they brush against their prey these stinging cells launch barbed stingers and poison. Jellyfish can be as small as 2 – 3 centimetres to over 60 meters long.

PASCAL GOETGHELUCK / SCIENCE PHOTO LIBRARY

6. Flounder

The flounder is a flatfish that lives in oceans and grows to around 30 – 40 cms in length. This fish eats mainly fish spawn (eggs), small fish and crustaceans. Flounders use their shape and colour to blend into the seabed, whether it is pebbles or sand, so that they are camouflaged and can catch their prey without being seen.

ANDREW G. WOOD / SCIENCE PHOTO LIBRARY

THE SAW PROCESS CASE STUDY – THE SEA

As with all SAW themes the first stage was to make a list of key words related to the sea, for example:

water, seaweed, sand, shells, fish, crabs, waves, sunlight, food chain, pollution, camouflage

A search of the internet provided dozens of high quality photographs, so it was difficult to choose a set. The images were chosen (see page ??) to include interesting and less obvious perspectives of the sea, so that they are more likely to stimulate discussion and offer a range of patterns for art work.

Learning Objectives

Science

Know that the sea is a habitat; plants and animals live in the sea.

Know that plants and animals that live in the sea are adapted to their habitat.

Know that sand is made from rock eroded by the sea.

Know that some animals use camouflage to hide in their habitat.

Know that some things float and some things sink.

Art

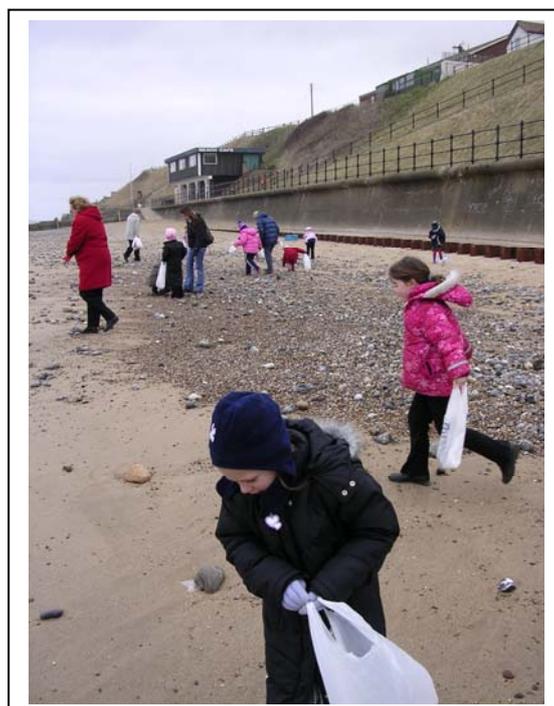
To be able to use everyday objects and materials to create a collage.

To recognise patterns in everyday things and recreate these using printing techniques.

Writing

Be able to create imaginative descriptions of objects and experiences.

Be able to draft and revise a poem.



Children Beach Combing

You could think about using objects as well as or instead of images. This proved to be very successful with 4-8 year olds working on the theme of “The Sea”. Children visited a local beach where they beach-combed, collecting found materials and placing them in their collecting bags and buckets to observe and use back in the classroom. We had gathered our set of images on the theme, but also used natural and man-made objects that the children had collected. When the children brought these back into the classroom the objects were used alongside the images as a stimulus for Science, Art and Writing activities (described in the next section).

SEAWEED



Science

Floating and sinking – what are the swollen bladders for? Challenge the children to use everyday materials e.g. balloons, bubble wrap to create a model of seaweed to which they could add research about seaweed using labels and captions. Age appropriate scribed or written by children



James Martell age 5

Seaweed

*Green wet rug
Like bubblewrap
Little green eyeballs looking at the fish
Using the seaweed for their blanket
Playing hide and seek.*

Group poem by children age 6-8.

Art

The children looked at seaweed under a digital microscope and took and stored photographs, then explored the colour contrast feature and printed out their results.

Using a frond template they then chose different coloured paper to match their picture, and cut out and arranged fronds on a background. Children shared photographs and compared similarities and differences between their seaweeds.

Writing

Hands on exploration of the seaweed is crucial as is collecting descriptive words children offer as they are feeling the texture, so that these words can be used when they write their poem. In these examples the children offered words and phrases such as wet rug, like bubblewrap, squidgy and eyeballs which were well chosen images. Victoria's is a sensuous poem, which you can believe in completely, and see her squeezing her seaweed necklace.

Seaweed

*Seaweed like a necklace,
long enough for me to wear
with squidgy bits for me
to squeeze.*

Victoria Ing, Age 5

SALT CRYSTALS

Science

This is an excellent opportunity for children to use a microscope to observe salt crystals and their formation. Give children table salt, rock salt and sea salt to compare. Salt is dissolved in seawater. Allow children to create different concentrations of salt and compare how objects float. Different seas around the world have different concentrations of salt. The Dead Sea contains 4 times as much salt as other oceans; in fact people float in the dead sea and read newspapers as if they were sitting in an arm chair!



Elle Stevens,
Age 5



Hollie Clements, Age 6

Art

When children observe salt crystals under the microscope they should be asked to think about the shape of the crystals, their colour, whether they are translucent or opaque. Allow children access to different size and shaped sponges or potato pieces to use to print patterns which reflect what children have seen under the microscope.

Writing

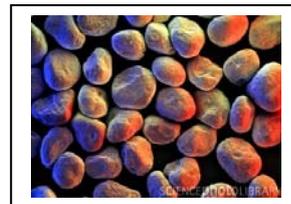
The focus of this activity was to encourage children to think about the images of salt crystals under the microscope and to draw comparisons with everyday objects. Here Tommy describes the salt crystals as square crisps, a wonderful use of personal experience linked to the shape of the salt.

Salt crystals

*Square crisps
Left along,
As they drop onto the beach
Gently floating out to sea.*

Tommy MacGowan, Age 7

SAND



Science

For very young children use the sand tray and hide different plastic sea animals, shells, seaweed for them to find. Create acetate pictures of fish such as flounders, cut them out and place them in the sand. You could place a large sheet of paper with pictures of the different animals hidden in the sand so that children can match them to the correct picture as they find them. Children will also know whether or not they have found all of the animals / shells / seaweed.



Artwork by children age 6-8

Sand

*Crinkles tickles scratchy
Light and soft
Pebbles like bean bags under our feet
The sand was blown into huge yellow igloos
Wet sand curls up between my toes
Sinking feeling squidgy wet
But when the wind blows the sand is blown
into dust.*

Group poem by children age 6 – 8

Art

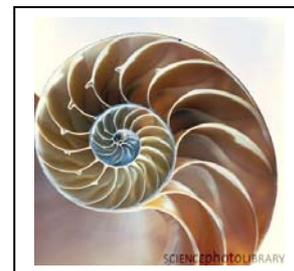
This group of children created sand pictures of the ocean floor, painting a background of fish, plants, rocks and used PVA glue with sand sprinkled on it whilst wet. Some children also used this effect on rocks and to give texture to fish in their picture.

Writing

Group poems are excellent approaches to modelling how to write poetry. Working in pairs children are given something to write a description and once the children have drafted and revised their phrase they share it with everyone else. Individual whiteboards can be used here and the children can hold up their contribution. The teacher collates the phrases to create a poem.

They offered some very unusual but appropriate ideas. The group has clearly used their own personal experiences of sand and offered very creative descriptions. Many draw upon the sense of touch using words such as tickles, scratchy, squidgy whilst others cleverly suggest that sand dunes are igloos and blowing sand is dust.

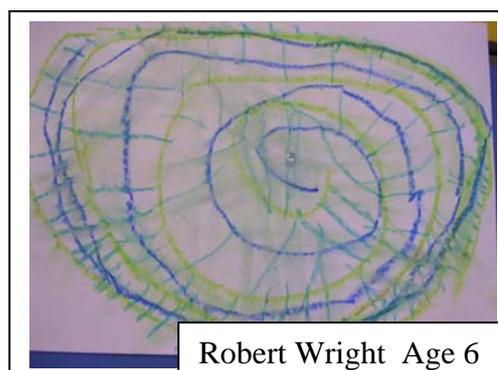
NAUTILUS



Science

Observation and classification is central to science and a collection of shells provides the ideal opportunity for children to compare similarities and differences in order to classify shells into different groups. Encourage children to create their own classification systems and challenge them to explain how they have sorted the different shells.

Discuss with children and show them images to help children to understand that the shell protects the soft body of an animal inside the shell. Draw comparisons with snails they find around the school and garden at home.



Robert Wright Age 6

Shannon's Shell

*Shannon's shell is
Smooth and stripy
Dark on the outside
Light on the inside*

*Shannon's shell is broken now
Someone could have stood on it
A whale's tail could have bashed it
The waves could have crashed it.*

Shannon Cervi, Age 5

Art

Observational drawing needs to be taught as with other art skills. Before children commit the pattern on the shell to paper ask them to draw it using only their fingers in the air, then on their friend's back and on their desk. This helps the children to understand and internalise the pattern prior to drawing it or using pebbles from the beach to create a collage.

Writing

This clever poem contains within it a story about who the shell belongs to and what happened to the shell. Even at the age of 5 children can imagine what happened to break a shell and in this case Shannon linked it to what she knows lives in the sea, suggesting that a whale broke the shell. It provides wonderful evidence of her ability to develop a storyline in the form of a poem.



Artwork by children age 4-6

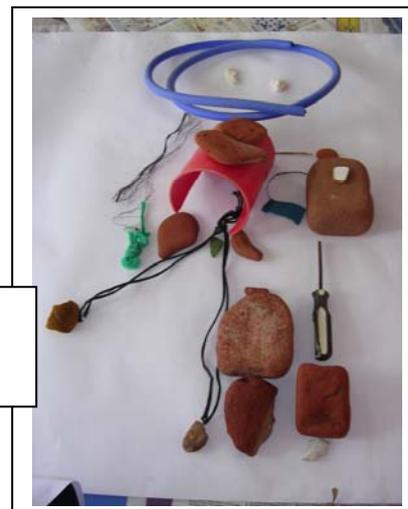
JELLYFISH

Science

Collect a set of books on jellyfish or on the classroom computer place a selection of sites about jellyfish that children can access. Tell children to ask 6 – 10 questions about jellyfish and then use the reference material to answer their questions – give them small cards on which to write their answers to avoid them simply copying sentences.



Artwork by children
age 4-6



Jellyfish

*A bright alien's spacecraft
Floating
In the moonlit sky.
A glowing light in the darkness
Wires falling, falling.
A floppy leg hanging
From a dangling parachute.
Who is coming?*

Sam Cosgrove, Age 7

Art

Two different techniques have been used here by children to express their observations of a jellyfish. In the first photograph the children paint a picture of a jelly fish using white and grey paint mixed with glitter on black paper. In the second photograph children use materials found on a beach to create a collage. The teacher took a photograph of the collage as evidence of their work because some of the items used were too heavy and large to fix onto the paper.

Writing

In Sam's poem (above) the space craft works well as an extended image. He's looked hard and been creative and the question at the end of Sam's poem is an excellent ending.

When writing poetry children often need help discarding superfluous words. Joshua (right) uses careful observation to create an excellent poem, but would be encouraged to think about using the word clouds twice.

Jellyfish

*Electrical cloud
Wobbly arms
White ribbons dangling
Shiny clouds
A moon coming out of a mist
A mushroom with legs,
it floats off the beach.*

Joshua Gammon, Age 7

FLOUNDER



Science

The flounder is an excellent example of an animal that uses camouflage to hide from its prey and also from predators. In art children could paint a flounder, making sure that it is realistic and then paint different backgrounds against which children can test which is the best background for the flounder to camouflage itself.

Flounder

Looks like sand
Yellow.
Lonely.
Wide as the sand on the seashore
Looks like an X-ray
A sandy shadow
Weird and mysterious
Shadowy as a ghostly ghoul
Flat as a pancake.

Group poem, children age 6-8



Art

This activity began as a collection of pebbles from the beach placed on table where a couple of children began to create a flounder fish. Gradually other children gravitated towards the activity and joined in until there were five children engaged in creating the fish. Interestingly the children have captured the shape and proportions of the fish. The teacher took a number of photographs of the children as evidence of the art work and also children engaged in a collaborative activity.

Writing

The words in this poem capture a sense of the children's fascination with the image of the flounder. The children have captured the fact that the fish is almost as wide as it is long and moved from considering it as 'weird and mysterious' finishing with a cliché ending that works bringing the children back to common places with a sense of relief.