ACET Junior Academies'

Scheme of Work for Science

Big Idea – Living Things

Year 1 – Human Body and Senses

About this unit:

PoS – Animals, including humans

Students will learn about their bodies, and explore how they work. They should be using key terms, and developing how they talk about their bodies, considering what parts of it do and how they may work together. There are many opportunities for investigations, which build on the investigative skills they have begun to learn. Keep emphasising that they are learning to be scientists, and that they need to investigate, find evidence, and use key terms to explain things. They will study the senses, and look at what investigations show us about how our senses work. In this unit the students will be able to discuss what happens if part of the body is missing, or does not work as well as it should.

At some point, students need to go outside and make observations for the Class Year Book. They could also plant some vegetable seeds in the classroom which can be planted out later in the spring.

Unit structure

This unit is structured around seven science enquiries:

1. What are all the parts called?
2. Can you use your body to find things out?
3. Do things taste the same when they are hot, cold or warm?
4. Does your skin sense the same way all over your body?
5. How good is your sense of touch?
6. How did Louis Braille use his sense of touch?
7. How can you make music when you can't hear?

Links to previous and future National Curriculum units

History – Lives of significant individuals

- Y2 – Health and hygiene
- Y3 – Nutrition, Skeleton and Muscles
- Y6 – Healthy humans

<table>
<tr><th colspan="4">Enquiry 1: What are all the parts called?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">EY – Children should be able to identify parts of their body</td><td>EA – Identifying, grouping and classifying

Asking questions
Observing and measuring</td><td rowspan="2">Can your children:
- Name the parts of the body
- Tell you what the function of the part is
GD – start to make connections between the structure and function.</td><td rowspan="2">Horizontal:
Y1 Identifying animals – looking at common features and what they do

Vertical:
Y3 – Nutrition, skeleton and muscles</td></tr>
<tr><td>Key concepts:
Your body is made up of different parts, which have different names.
The parts all work together so that you can do things.
Each part has a different function.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Skeleton, skull, skin, head, neck, arms, elbows, arms, fingers, chest, ‘tummy’, legs, knees, feet, toes</td><td colspan="2">‘Tummy’ is not the same as ‘stomach’. Tummy is the general area between the ribs and the pelvis. Stomach is a specific part of the digestive system, inside the body – your food goes there. It’s fine for students to refer to their tummy – but don’t let them say ‘stomach’ if they mean ‘tummy’.</td></tr>
<tr><th colspan="2">Suggested activities</th><th>Resources</th><th>Useful links</th></tr>
<tr><td colspan="2">Lie on a piece of wallpaper. Draw an outline of the body. Label with parts of the body. Students can draw themselves and label their own body. What jobs do the different parts of the body need to do? Encourage questioning, problem solving and debate.

Parts of the body - skeleton, skull, skin, head, neck, arms, elbows, arms, fingers, chest, ‘tummy’, legs, knees, feet and toes

You could discuss what happens when parts of the body don’t work – e.g. needing hearing aids or splints. Link this to the previous topic – what material would you use to make a splint? Or a wheelchair?

Lots of ‘parts of the body’ songs available on youtube – the class could make their own, and even record it.

GD – what issues would you face if that part of your body was missing? How would it affect what you can do? How could you help someone with that part of their body missing?</td><td>Wallpaper/roll of paper long and wide enough to draw outlines of the students.</td><td></td></tr>
</table>

<table>
<tr><th colspan="4">Enquiry 2: Can you use your body to find things out?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">EY – Children should be able to identify different parts of their body</td><td>EA – Identifying, grouping and classifying

Asking questions
Observing and measuring
Interpreting and communicating data</td><td rowspan="2">Can your children:
- Name the five senses
- Link the senses to the organs that carry them out

GD – consider animals that can smell/taste/hear things that we can't</td><td rowspan="2">Horizontal:

Vertical:
Y3 – Nutrition, skeleton and muscles
Y6 - Systems</td></tr>
<tr><td>Key concepts:
Our bodies collect a lot of information from the environment around us.
Our noses smell things, our mouths taste things, our ears hear things, our skin feels things and our eyes see things.</td></tr>
<tr><td colspan="2">Key terms</td><td colspan="2">Common misconceptions</td></tr>
<tr><td colspan="2">Sense, warm, cold, sound, smell, taste, see</td><td colspan="2"></td></tr>
<tr><td colspan="2">Suggested activities</td><td>Resources</td><td>Useful links</td></tr>
<tr><td colspan="2">Link this lesson to the concept of scientists doing things to find out about them. What does your nose do? What do you think it does? Lets do something to see whether you're right or not/find proof.

Make up a pot noodle, or other hot, fragrant edible item. Make up a bowl of rice krispies and milk.

Students should describe them. Group the descriptions in to taste, smell, sight, sound, touch (Obvious – don't let them actually touch the hot liquid, watch out for allergies etc). Move on to which organs do the sensing.

Choose 3 mystery objects; 1 – something scented, 2 – something edible, 3 – something metallic.

Mystery object 1 – does it smell good? How will you tell?
Mystery object 2 – does it taste good? How will you tell?
Mystery object 3 – does it sound good when you hit it? How will you tell?

Students should describe their object, and say how they know it smelled good (I smelled it with my nose) etc. They could draw lines between a picture of the object, and the relevant words to describe it.</td><td>Pot noodle or similar
Rice krispies & milk

3 mystery objects –
1 scented
1 edible
1 metallic (that you can hit and it makes a sound)

A way of hiding the objects from the students (blindfold?) while they test them</td><td></td></tr>
</table>

After the tests, allow the students to see and touch the objects. Do they feel like they understand it better after doing this? Point out that using 5 senses together is usually better than using one at a time. Safety – discuss the implications of smelling/tasting certain materials and objects.		

<table>
<tr><td colspan="4">Enquiry 3: Do things taste the same when they are hot, cold or warm?</td></tr>
<tr><td>Links to previous learning</td><td>Scientific skills</td><td>Assessment criteria</td><td>Curricular links</td></tr>
<tr><td rowspan="2">EY – Children can talk about things they have observed including animals</td><td>EA – Pattern seeking

Asking questions
Making predictions
Recording data</td><td rowspan="2">Can your children:
- State that you taste with your mouth
- Tell you that things can taste different if they are hot or cold
GD – state some other examples of where a food may taste different</td><td rowspan="2">Horizontal:

Vertical:
Y3 – Nutrition, skeleton and muscles
Y6 - Systems</td></tr>
<tr><td>Key concepts:
We use our mouths to taste things
Our mouths can taste warm things better than cold things
Hot, warm, cold as a range of temperatures</td></tr>
<tr><td colspan="2">Key terms</td><td colspan="2">Common misconceptions</td></tr>
<tr><td colspan="2">Sense, warm, cold, warmer, colder, smell, taste, more, less</td><td colspan="2"></td></tr>
<tr><td colspan="2">Suggested activities</td><td>Resources</td><td>Useful links</td></tr>
<tr><td colspan="2">Do things taste the same when they are hot, cold or warm?

Orange squash, blackcurrant and water. Can you tell the difference between them when they are warm, room temperature, and frozen? With the frozen one – you need to lick it – if you suck it, you're warming it up to body temperature*. Students can be blindfolded to taste them – you could have class volunteers, and see how many times students can tell the difference, or each student could have a go.

Separate question – do they taste better when they are hot, warm or cold?

More opportunity to record data – simple tally charts etc. See the table saved in resources. The students should have opportunities to discuss this, and make the marks themselves (but don't have to actually design tables etc themselves)

* students can discuss this – icepops taste better when you bite a piece off and suck it, rather than just lick it.

Introduce thermometers, and reading the scale to see whether something is hot, warm or cold.</td><td>Orange squash, blackcurrant squash and water
- made up in ice cube trays/bags
- made up warm
- made up with cold tap water
Make the squash relatively weak, but so that there is a difference in taste. Use the same strength for all 3 samples

Results table

Thermometers</td><td></td></tr>
</table>

Enquiry 4: Does your skin sense the same way all over your body?

Links to previous learning	Scientific skills	Assessment criteria	Curricular links
EY – Children can talk about things they have observed including animals	EA – Comparative/fair testing EA – Pattern seeking Asking questions Making predictions Observing and measuring **Recording data** **Key concepts:** The sense of touch is carried out by the skin Different parts of the skin sense touch differently The skin on your fingers has the best sense of touch *We can feel the difference between a lot of pressure and a little pressure.*	**Can your children:** - State that you touch and feel things with your skin - Your skin all over your body can feel things - Your fingers have a better sense of touch than other parts of your body	**Horizontal:** **Vertical:** Y3 – Nutrition, skeleton and muscles Investigative skills – all years

Key terms	Common misconceptions
Sense, touch, skin, pressure, hard, soft, feel	

Suggested activities	Resources	Useful links
Close your eyes and have someone touch an object to different parts of your skin. Can you tell what it is? Work in pairs or small groups, and fill in a tick/cross table Use this activity to reinforce naming different parts of the body. Emphasise that it is the skin that senses touch, but that the skin on your hands and face is more sensitive than other parts of your body. *GD - students might want to consider that we feel pressure on our skin (they don't need to be able to use that term). Our skin can tell us how hard something is pressing on it. Consider all the ways this is useful – get them to consider the soles of their feet when they're standing/jumping, or their bottom/back of their legs when they're sitting down. Can they feel the pressure of clothes on their shoulders?*	Tennis ball, pine cone, sponge, eraser, marble Results table	https://kidshealth.org/en/kids/experiment-head.html

Object	Can my partner tell what it is?

<table>
<tr><th colspan="4">Enquiry 5: How good is your sense of touch?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="3">EY – Children can talk about things they have observed including animals</td><td>EA – Identifying, grouping and classifying
EA – Problem solving

Asking questions
Making predictions
Observing & measuring</td><td rowspan="3">Can your children:
- Use a range of words to describe what they feel
- Tell you what information they are using to make a decision (e.g. I think it's a tennis ball because…)
GD – think of objects that would be difficult to tell apart, and why</td><td rowspan="3">Horizontal:
Y1 Everyday materials – using key terms and describing properties

Vertical:
Investigative skills, and understanding properties – all years</td></tr>
<tr><td>Key concepts:</td></tr>
<tr><td>We can use our bodies like scientists to find things out.
The more words we can use to describe things, the more like a scientist we are.

This lesson is more about scientific/metacognition processes than the factual information.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Wood, metal, ceramic, plastic, rock, glass, hard, soft, shiny, strong, flexible/bendy - these are terms which will be introduced in the materials unit</td><td colspan="2"></td></tr>
<tr><th>Suggested activities</th><th>Resources</th><th colspan="2">Useful links</th></tr>
<tr><td>Objects in a box. Can you differentiate between objects in a box, when you know what was put in there?

Can you identify unknown objects in a box?

Students should be as descriptive as possible about what they are sensing. They will be using key terms to describe materials later in the year.

Students should be trying to explain how they know, rather than just naming objects.

GD - Can they think of other objects to put in the box, that would be difficult to tell apart? Can they discuss why those objects would be difficult to tell apart? What other senses would help them differentiate their objects</td><td>A box of 'mystery objects' which the students can touch but can't see.

This works well in a big box with holes in the side and the back cut off – the student 'feeling' can't see in, but the rest of the class can see what they're touching.

Or you can use a range of small boxes with a different object in each – tissue box game</td><td colspan="2">https://www.youtube.com/watch?v=Ax7ujAm5Gr8 – mystery box that the other students can see into

https://www.pinterest.co.uk/pin/454582774622504451/ - tissue box game</td></tr>
</table>

<table>
<tr><th colspan="4">Enquiry 6: How did Louis Braille use his sense of touch?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">EY – Children can talk about things they have observed including animals</td><td>EA – Research

Asking questions
Making predictions</td><td rowspan="2">Can your children:
- State that blindness means you don't have your sense of sight
- Describe how a blind person can read with Braille</td><td rowspan="2">Horizontal:
History – Lives of significant individuals

Vertical:
Y2 – Health & Hygiene
Y6 - Systems</td></tr>
<tr><td>Key concepts:
Not all the senses work as well as they should in everyone.
If part of your body doesn't work, you can use a different part of your body to help you.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Eyes, blind, sight, loss, touch, sensitive, read</td><td colspan="2"></td></tr>
<tr><th colspan="2">Suggested activities</th><th>Resources</th><th>Useful links</th></tr>
<tr><td colspan="2">Introduce the students to what it might be like to be blind. Think about all the things we use our eyes for – make a list of all the things you have needed to use your eyes for since you woke up this morning.

Note that there are a wide range of visual impairments between being able to see, and being totally blind.

Discuss why Braille is often found on safety labels on chemicals and medicines at home – why is it not on food. Have the students seen these anywhere else? They are often found on street signs.

What sort of things would be more difficult than for sighted people? How can they be assisted? Class research

Activities from the RNIB about Louis Braille and how Braille works.

They could also look at David Blunkett – someone who was successful in the modern era despite being blind.

Futsal – 'blind football' – students could have a go at playing this. What senses do you use if you can't use sight?</td><td>Objects that have Braille – often found on the safety labels of household chemicals, or on packets of paracetamol.</td><td>https://www.rnib.org.uk/braille-and-moon-%E2%80%93-tactile-codes-learning-braille/braille-resources-schools</td></tr>
</table>

<table>
<tr><th colspan="4">Enquiry 7: How can you make music when you can't hear?</th></tr>
<tr><th>Links to previous learning</th><th>Scientific skills</th><th>Assessment criteria</th><th>Curricular links</th></tr>
<tr><td rowspan="2">EY – Children can talk about things they have observed including animals</td><td>EA – Problem solving

Asking questions
Observing & measuring</td><td rowspan="2">Can your children:
- State that deafness means that you don't have your sense of hearing
- Describe how people can make music despite not being able to hear</td><td rowspan="2">Horizontal:
History & Music – Beethoven & Evelyn Glennie

Vertical:
Y2 – Health & hygiene
Y6 - Systems</td></tr>
<tr><td>Key concepts:
Not all the senses work as well as they should in everyone.
If part of your body doesn't work, you can use a different part of your body to help you.</td></tr>
<tr><th colspan="2">Key terms</th><th colspan="2">Common misconceptions</th></tr>
<tr><td colspan="2">Ears, deaf, hearing, loss, touch, vibration</td><td colspan="2"></td></tr>
<tr><th colspan="2">Suggested activities</th><th>Resources</th><th>Useful links</th></tr>
<tr><td colspan="2">Play some music- including some Beethoven and Evelyn Glennie (a world class musician who is deaf). Get the students to give their opinions, using descriptive words. Most of us hear music with our ears.

Introduce the concept of deafness. Link this to being hard of hearing – see link, which models what it is like to not hear clearly. Note that there is a wide range of hearing loss between having good hearing and being profoundly deaf.

Play some of Beethoven's music. How do you think he composed it? He used to put his ear against the piano as he played it – the students could try this on a piano (it won't work on an electric piano). Evelyn Glennie on the Marimba – how do you think she can play so well when she can't hear it?

Look at a drum with rice on it – see how it shakes. Can you make a noise somewhere around school, where it can be felt even if you can't see it? Like sitting on a slide while someone bangs on it? Make different sounds – is it easier to feel some sounds than others?

Many people lose some of their hearing as they get older. Investigate activities (work and leisure) that can lead to hearing loss, and what can be done to prevent it.</td><td></td><td>https://www.youtube.com/watch?v=_jpe0_v2nAc – hearing loss simulator

https://www.youtube.com/watch?v=jVw5KawqUIg – Sesame Street. Introducing Evelyn Glennie as a deaf musician who takes off her shoes so she can 'feel' the music through her feet.

https://www.youtube.com/watch?v=CHBsFOI-SnA – Evelyn Glennie playing the marimba professionally</td></tr>
</table>