



# Medium Term Plan

## Excretion



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### **P levels**

Performance attainment targets (P scales) and performance descriptors are used for pupils aged 5 to 16 with special educational needs (SEN) who are working below the standard of the national curriculum tests and assessments. PSTT recognises that the national curriculum levels used in this document are no longer current. We have had so many requests to return these materials to the website that they remain in the documents as a guide for those who have used them in the past. The written statements may be useful to others as an indication of children's development. For further information about P levels see:

<https://www.gov.uk/government/publications/p-scales-attainment-targets-for-pupils-with-sen>

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Primary Science Teaching Trust recommends that a full risk assessment is carried out before undertaking in the classroom any of the practical investigations contained in the plans.

### **Safety Note**

PSTT advises teachers to refer to either CLEAPSS website or SSERC website for up to date health and safety information when planning practical activities for children.

## Big Questions

- Where does our waste go?
- Where does waste come from?
- What comes out of our bodies that we don't put in?
- Why do people whose kidneys don't work become ill?
- What is in our breath when we breathe out?

## Learning Objectives

Pupils will have opportunities:

- To explore excretion and its products

## Quick review activities

- Recap the different nutrients from food and digestion.
- Recap what our lungs do from the heart and lungs.
- Recap what is carbon dioxide from particles.
- Match body organ to waste product
- Play hangman using some of the vocabulary words

## Answers

- Waste food (faeces, mostly fibre) is pushed out of the body via the rectum. Waste gas is breathed out from the lungs (expired). Sweat is excreted through glands in our skin.
- Faeces is produced when ingested food has been broken down as it passes through the digestive system. Carbon dioxide is produced in cells when energy is released and returns via the blood to the lungs.
- Everything that comes out of our bodies is produced by a chemical reactions that happen inside our bodies.
- The kidneys filter out unwanted substances from the blood. If they don't work, toxins will accumulate in the blood.
- When we breathe out (expire) our breath contains 80% unused nitrogen, 16% oxygen and 4% carbon dioxide which was produced in the cells by respiration and returned to the lungs via the blood.

### Vocabulary relevant to this topic

- Waste- a substance which is not needed by our body and can be toxic if allowed to build up.
- Recycle- to use again.
- Fibre- the parts of our food which are difficult to digest. Fibre forms the bulk of poo (faeces).
- Carbon dioxide- a gas produced by respiration (our body releases energy from the food which we eat).
- Lung- the organ which we use to breathe.
- Kidneys- organs which filter the blood and produce urine.
- Intestines- where useful products of digestion (nutrients and water) are taken into the blood leaving behind the fibre from our diet.
- Excretion- getting rid of waste products from the body.
- Indicator- a substance which changes colour to indicate the presence of another substance.
- Lime water- an indicator which changes from transparent to milky white when carbon dioxide is bubbled through it.
- Sodium hydrogen carbonate solution- an indicator which changes from red to yellow when carbon dioxide is bubbled through it.
- Poo, wee, sweat,

### Background information about this topic

- Our bodies produce waste. Waste products include poo (faeces), wee (urine), sweat and carbon dioxide. Poo is mainly made of fibre which cannot be digested. Our kidneys filter our blood and produce urine. Carbon dioxide is released from the body by the lungs; it is made by the body when we break down the food we eat to release energy. Sweat is produced by the skin to cool the body but is also a way of removing water from the body.
- We can test for the presence of carbon dioxide in our breath by bubbling (using a straw) our breath through either lime water (which turns from transparent to milky white) or sodium hydrogen carbonate solution (which turns from red to yellow). Because these substances change colour in the presence of carbon dioxide, we call them indicators.
- The process of removing unwanted products of chemical reactions from the body is called excretion. It is not the same as egestion which is getting rid of parts of food we cannot digest

# Excretion P1-3

**Objective: To explore excretion and its products**

## Descriptions of intended outcomes at different levels of attainment

- Participation is fully prompted (P1i)
- Shows emerging awareness of activities and experiences (P1ii)
- Changes body language in a more sustained way during the experiences (P2i)
- Performs actions often by trial and improvement (P2ii)
- Observes results of own actions with interest (P3i)
- Actively explores activities for more extended periods (P3ii)

# Excretion P1-3

**Objective: To explore excretion and its products**

<p><b>Possible Activities:</b></p>	<p><b>Resources:</b></p>
<p>Experience breathing out onto a cold mirror or glass and feel the water that forms. Then try breathing onto scarves or similar woolly fabrics to feel them get wet.</p> <p>Make links to waste when pupils are experiencing routines around toilet training or going to the toilet</p>	<p>Cold mirrors or glasses, scarves</p>
<p><b>Optional activities you might like to try include:</b></p>	<p><b>Resources:</b></p>
<p>Experience taking part in a waste separation activity picking useful things from waste materials</p>	

**Points to Note:**

Pupils may think that humans don't produce waste.

# Excretion P4-6

**Objective: To explore excretion and its products**

## Descriptions of intended outcomes at different levels of attainment

- Imitates the actions of the teacher/ adult (P4i)
- Communicates awareness of changes in the indicator (P4ii)
- Completes a simple task of breathing into indicator with guidance (P5i)
- Indicates the before and after changes (P5ii)
- Makes sensory based comparisons of indicator changes with support (P6i)
- Matches organ to waste product with help (P6ii)

# Excretion P4-6

**Objective: To explore excretion and its products**

<p><b>Possible Activities:</b></p>	<p><b>Resources:</b></p>
<p>Make simple organ aprons and dance or mime to show all of the bodies' waste materials: poo -holds abdomen, wee -points to position of both kidneys and carbon dioxide- holds the lungs, sweat – move hands all over body.</p> <p>Match pictures of the organ cut outs to pictures of poo, wee and carbon dioxide (a blown up balloon).</p> <p>Talk about how we have more carbon dioxide in our blown out breath than in the air.</p>	<p>Organ aprons – draw organs onto a simple white apron,</p> <p>Pictures of organs: stomach, kidneys, lungs, body</p>
<p><b>Optional activities you might like to try include:</b></p>	<p><b>Resources:</b></p>
<p>Experience breathing out onto a cold mirror or glass and feel / see the water that forms. Then try breathing onto scarves or similar woolly fabrics again to feel them get wet. Talk about other times water comes out e.g. sweating and weeing and why this might happen.</p>	<p>Cold mirrors or glasses, scarves</p>

**Points to Note:**

Pupils can think that humans only produce faeces as a waste material.

When thinking about waste pupils may associate poo with their bottom and wee with the penis/ bottom.



# Excretion P7-8

**Objective: To explore excretion and its products**

## Descriptions of intended outcomes at different levels of attainment

- Actively joins in scientific investigations and explorations (P7i)
- Shows understanding of some simple scientific vocabulary e.g. before, after, waste (P7ii)
- Recognises organs and what they produce (P8i)
- Contributes to planning an investigation by suggesting using different antiperspirants (P8ii)

<b>Possible Activities:</b>	<b>Resources:</b>
<p>Talk about what might happen if we didn't get rid of waste e.g. could have a bag and keep filling up with food to help visualise this.</p> <p>Use the video rap <a href="http://www.youtube.com/watch?v=0yjLjfz6saU">http://www.youtube.com/watch?v=0yjLjfz6saU</a> to look at different systems.</p>	<p>Big bag, food to put in bag, fresh limewater, straws, boiling tubes, fish tank pump</p>

# Excretion P7-8

**Objective: To explore excretion and its products**

Optional activities you might like to try include:	Resources:
<p>Stick organ cut outs and coloured cards with with poo, wee, water, sweat and carbon dioxide around the room and pupils have to move to the correct answer. E.g. what comes out of our lungs?</p> <p>Talk about the kidneys and make a kidney model to show how they work using instructions from <a href="http://www.youtube.com/watch?v=nJVbFIIycKo">http://www.youtube.com/watch?v=nJVbFIIycKo</a></p> <p>OR</p> <p><a href="http://www.ehow.com/how_8034005_experiment-filters-explain-kidney-works.html">http://www.ehow.com/how_8034005_experiment-filters-explain-kidney-works.html</a></p>	<p>Organ cut outs of lungs, kidneys, whole body -skin and intestines, pictures of poo, wee, water, sweat and blown up balloon as carbon dioxide, water bottles, scissors, funnel, tubing, sealant, red food colouring, crushed chalk, water, coffee filter paper</p>
<p>Use the organ cut outs and cards as stepping stones from one side of the room to the other. Pupils have to say something about the card which they are stood on before they can step onto the next card.</p> <p>Investigate sweating by trying different activities and looking at sweat marks on t shirts the pupils have worn.</p>	

## Points to Note:

Pupils may think that:

- the penis produces urine
- the bottom produces poo
- carbon dioxide is not one of our body's waste products.

# Excretion L1-3

**Objective: To explore excretion and its products**

## Descriptions of intended outcomes at different levels of attainment

- Uses senses or simple equipment to make observations in investigations (L1i)
- Presents evidence in simple templates provided (L1ii)
- Identifies changes when observing what happens during investigations (L1iii)
- Presents results of investigation in an ordered way (L2i)
- Makes comparisons between the results (L2ii)
- Responds to prompts by using simple texts or electronic media to find out about body waste (L2iii)
- Identifies one or more control variables in investigations (L3i)
- Records results sequentially with enough readings to show a pattern (L3ii)
- Describes what they found out simply linking cause and effect (L3iii)

# Excretion L1-3

Objective: To explore excretion and its products

<b>Possible Activities:</b>	<b>Resources:</b>
<b>Optional activities you might like to try include:</b>	<b>Resources:</b>

Points to Note: