

**East Renfrewshire Council: Education Department
Practitioner Moderation Template**

School Code	
Practitioner Code	F13
Curriculum Area(s)	Science/ Literacy
Level	Second
Stage(s)	P7
Specific subject (if applicable)	Biological Systems - Micro-organisms

Experiences and Outcomes:

*I have **contributed to investigations** into the role of microorganisms in producing and breaking down some materials.*

SCN 2-13a

*I can **make notes, organise these under suitable headings** and use these to understand information, develop my thinking, explore problems and **create new texts, using my own words as appropriate.***

LIT 2-15a

Learning Intentions:

- To investigate the role of micro-organisms.
- To organise my notes under suitable headings and use them to create a new text appropriate to the task.

Success Criteria:

- I can identify different types of micro-organisms
- I can explain the role of micro-organisms in producing and breaking down materials.
- I can describe factors which affect decomposition.
- I can make observations.
- I can explain the results of research, experiments and investigations as appropriate.
- I can take notes in a mind map or table format.
- I can suggest research and investigate a relevant topic related to real life experiences.

Briefly outline the context and range of quality learning experiences that have been provided making reference to the chosen design principles.

The pupils will take relevant notes from a variety of sources, including PowerPoint, video clips and texts. They will use this information to identify the main types of micro-organisms and create a new text. Findings will be presented in a format of their choice.

There will be coherence throughout the learning experiences linking the language and social studies skills.

The children will be asked to:

- Develop the success criteria
- Write notes in a mind map format or under suitable headings in a table
- Use this information to create new texts in a format of their choice
- Participate in practical work to investigate the growth of micro-organisms in a relevant real life situation
- Investigate and record their findings on the factors which are required for decomposition
- Use their findings related to decomposition to research and record how food is preserved (as an extension activity).
- Complete a self- assessment grid based on success criteria.
- Identify next steps and suggested activities.

Practitioner Moderation Template

Learner Evidence

Record the range of assessment evidence that was gathered to meet the success criteria (Say, Write, Make, and Do) considering breadth, challenge and application.

- Contributions to Success Criteria
- Learners' notes on micro-organisms displayed in a mind map/table format
- A leaflet produced by the learner using their notes
- Investigation report on the Mouldy Bread Experiment
- Shared their findings on factors affecting decomposition with their peers
- Research and findings related to food preservation
- Self-assessment grid including next steps

Did the learner successfully attain the outcomes? YES

Briefly outline the oral/written feedback given to the pupil on progress and next steps, referring to the learning intention and success criteria.

Oral feedback

This child was praised for suggesting relevant success criteria which linked to the learning intentions. This individual received positive oral feedback on his clear explanations when imparting knowledge with his peers based on the factors affecting decomposition. During the follow up discussion with his peers about further investigations the learner was praised for suggesting the group should try to investigate the immune system. During the mouldy bread investigation, this pupil asked why he was surprised at the result of the experiment and was praised for maturely using his prior knowledge and hypothesis to justify his response.

Written feedback

See annotated comments on learners' work.

Pupil Voice:

What have you learned?

I learned lots of interesting facts about Microorganisms
I have learned the factors that slow or prevent decay ~ temperature, oxygen and water
I have also learned about the immune system

How did you learn?

I have learned by taking key information from video clips, books and listening to others and recording everything that I learned in a table. I used this information to help me to make a booklet about Microorganisms.

What skills have you developed?



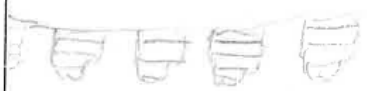


I have developed my note taking and observation skills. I also developed my research skills when I found out information about preserving food and the immune system.

I like finding different ways to present my work.

I want to research more about germs, microorganisms and the immune system.

Learner Evidence

How food is Preserved (F13)

Method	Example	Explanation
 Canning	Soup, Meat, veg, fruit and Tuna	- The sealed can is heated at a high temperature to kill bacteria. when it cools no more bacteria can enter.
 Cooling	ready made meals, milk	- Keep at 4°C so bacteria can't reproduce also it slows them down.
 Drying	fruit, flour, Soups, pasta	- Water is removed from the food so bacteria can't move around it slows growth of bacteria.
 freezing	Vegetables and meat products, ice cream	- Bacteria can't reproduce and can't move through water. also prevents growth of bacteria.
 Adding Salt	chips, crisps, Meat	- Adding salt removes water by osmosis.

We can preserve food by removing one or more of the factors that bacteria and fungi need to survive.

oxygen water
 temperature

F13

What factors affect decay?

Factor	Effect
Temperature	High temperatures stop decay they destroy enzymes and proteins low temperatures slow growth and reproduction.
Oxygen	lack of oxygen will slow decay as some bacteria can't survive without oxygen. Such as those used in biogas generators.
Water	lack of water will slow or prevent decay as water is needed for transport and to support inside reactions of organisms, water is needed for decay organisms to digest their food,

- Bacteria and fungi are both decomposers and decay at micro-scope level. Larger organisms speed up decay by breaking down dead matter. Larger organisms include earthworms that help break dead leaves. Woodlice that break down wood and maggots that feed on animal tissue. these large organisms are detritivores.

* You have written very good notes from the video

clip
* You have displayed these notes well, showing a good understanding of the factors which affect decomposition

Challenge With your group, discuss suggestions for further research to investigate decomposition. Can you think of real-life examples?

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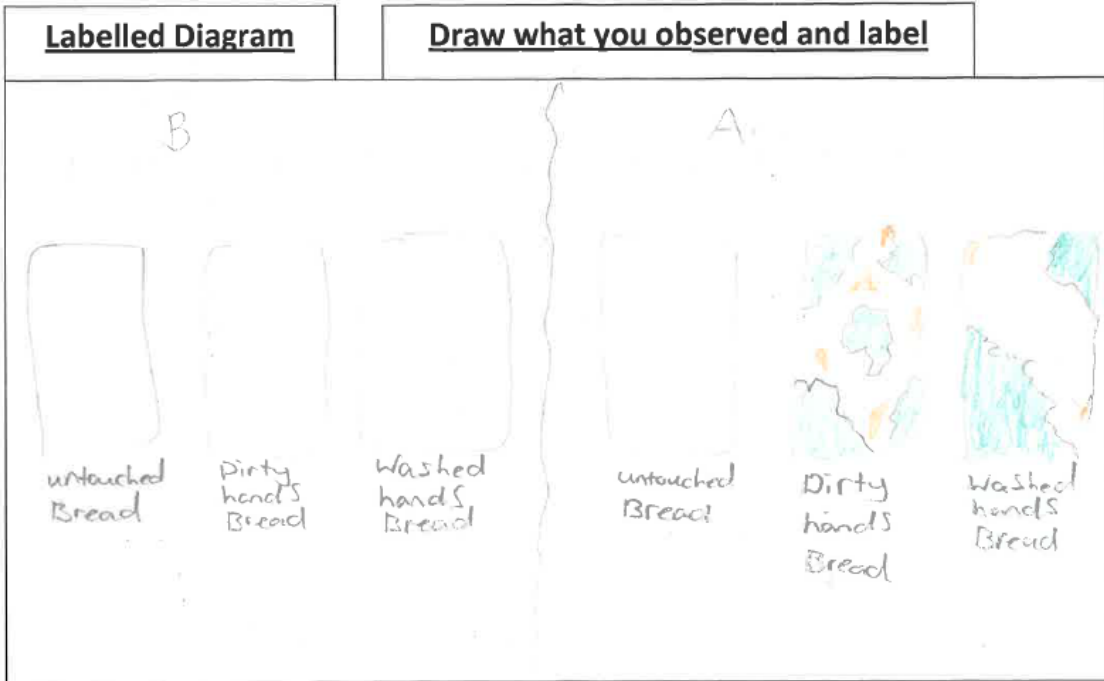
Social Studies/Language ~ Biological Systems - Micro-organisms

Date: November 2015	Group: Class	Topic: Micro-organisms
Learning Intentions:		
<ul style="list-style-type: none"> To investigate the role of micro-organisms. To organise my notes under suitable headings and use them to create a new text appropriate to the task. 		
Success Criteria Self-Assessment:		
<ul style="list-style-type: none"> I can identify different types of micro-organisms 		
<ul style="list-style-type: none"> I can explain the role of micro-organisms in producing and breaking down materials 		
<ul style="list-style-type: none"> I can describe factors which affect decomposition. 		
<ul style="list-style-type: none"> I can make observations. 		
<ul style="list-style-type: none"> I can explain the results of research, experiment and investigation as appropriate 		
<ul style="list-style-type: none"> I can take notes from key information 		
<ul style="list-style-type: none"> I can research a subject of my own connected to micro-organisms 		

You have given two very good suggestions for success criteria which link to the learning intentions well done!

Next step!
Discuss ideas in your group
Choose the group's best two learning intentions.

<u>Conclusion</u>	<u>Answer in sentences</u>
<p><u>What did you notice about the growth of the mould in each condition?</u></p> <p>The growth of the mold was growing at different paces between the untouched bread, the dirty hand bread and the clean hands bread. Mold spreads quicker on dirty conditions.</p>	



<u>Further Investigations</u>	<u>What else would you like to know?</u>
<p>Are there any other conditions that can affect the growth of mould like; air, heat, temperatures or anything like that.</p>	

- * You have made good observations during the experiment
- * You have given good explanations and good suggestions for further investigations Well done.

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Name: _____

Date: 16.09.15

Food Hygiene and Safety - Mouldy Bread Experiment

Aim: To investigate the effects of personal hygiene on the growth rate of mould.

Let's think...

If you have very dirty hands or hands which have been cleaned in anti-bacterial gel, which pair of hands would spread germs the quickest?

Would they all spread germs?

Hypothesis

I think that germs would spread the quickest on the very dirty hands before the cleaned hands with anti-bacterial gel. I think that not many germs would spread with the clean hands

bread touched by

Let's Try it...




Take 3 slices of bread. Slice 1: Put it in a plastic bag (without your hands touching it). We will use this as the control. Slice 2: Touch the bread all over with unwashed hands before placing the bread in a plastic bag. Slice 3: Touch the bread all over with hands which have been sanitised with antibacterial gel before placing it in the

Results

Bread Conditions	Description of bread after 7 days
Untouched bread	this piece of bread looked germ free and edible.
Bread touched by unwashed hands	on this piece of bread the germs were spreading at a very fast pace.
Antibacterial gel cleaned hands	on this piece of bread there was a lot of mold but not as much.

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Social Studies/Language ~ Biological Systems - Micro-organisms

Date: November 2015	Group: Class	Topic: Micro-organisms
Learning Intentions:		
<ul style="list-style-type: none"> To investigate the role of micro-organisms. To organise my notes under suitable headings and use them to create a new text appropriate to the task. 		
Success Criteria Self-Assessment:		
• I can identify different types of micro-organisms		green
• I can explain the role of micro-organisms in producing and breaking down materials.		green
• I can describe factors which affect decomposition.		green
• I can make observations.		green
• I can explain the results of research, experiment and investigation as appropriate.		green
• I can take notes in a mind map or table format.		green
• I can organise my notes under suitable headings to create new text.		green
• I can suggest, research and investigate a relevant topic related to real life experiences.		green
	I'm good at taking notes from videos, texts or clips and putting them into a mind map or table.	
	I'm good at making observations and carrying out research and investigations.	
	I would like to find out about microorganisms in my environment and other environments for example the Arctic.	
I learned best by:	By making mind maps from taking key information from video clips and putting them down on a mind map or table.	
My next steps:	Research about microorganisms in different environments. How food is preserved	
Suggested activities:	Research, watch more video clips from regions around the world, carry out experiments and investigations	
Teacher Comment:	You demonstrate a good understanding of the role of microorganisms in producing and breaking down materials. You have used your note-taking and research skills very well to produce detailed leaflets and tables. Your additional topics were well researched and presented. Well done!	

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Bacteria, Fungi and Viruses!



* You have demonstrated that you can use your notes to create a new text in the form of a leaflet. Your notes are well presented, using suitable sub headings.
* You have identified different types of microorganisms.
Well done!

Fungi

- Fungi isn't always bad but some are good and useful as it can be made into beverages, medicine, antibiotics and more!

- Fungi gets nutrients by absorbing from the organic place they live in. They feed on dead organic material like leaves.

Some fungi can cause instant death, there's over a million species of fungi.

How to prevent!

- Wash your hands thoroughly with soap. Always remember that spreading germs is really easy so make sure to do this or harmful germs will be spread to others.

Mould!

- Mould is shown in a lot of places like on bread, mushrooms and many other things. Mould can even come in different colours, sizes and shapes.

- Mould could be pink, blue, green, yellow, brown and more!

- Mould would come easier on out of date things than anything else!

Fun facts about fungi, bacteria and viruses!

- Good types of bacteria lives in human intestines. All bacteria in human body collectively weighs 4 pounds.

- Only 10% of all fungi species have been officially described in scientific literature.

- You can see fruit on fungi!

Notes about Bacteria, Viruses and Fungi F13

VIRUSES	BACTERIA	FUNGI
Multi celled ✓	Tiny ✓	we see the fruit on fungi
Plant like ✓	One celled ✓	Get nutrients by absorbing from the organic place in which they live ✓
Get nutrition from plants, people and animals ✓	Get nutrients from environment ✓	feed on dead organic material like leaves ✓
Live in damp warm places ✓	Bacteria can reproduce in or out of the human body ✓	Used in production of beverages, beer, wine etc. fungi are big sources for citric acid used in cold drinks. ✓
Not dangerous in healthy people ✓	Can cause infections like tonsillitis, cavities, ear infections or pneumonia ✓	Fungus is also used as medicine. Used as antibiotic and against allergy. example is penicillin. ✓
Enters and infects healthy cells ✓	Not all are bad some are good for human body ✓	Some fungi are fatal and dangerous for humans as well as plants. Fungi are poisonous, can cause instant death - parasitic fungi harm plants. ✓
Make their own food from soil, water and air ✓	Good Bacteria live in human intestines. All bacteria in human body collectively weigh 4 pounds. ✓	over a MILLION species of FUNGI , only 10% have been officially described in scientific literature

You have successfully taken notes from the text and organised them under suitable headings. It was a good idea to use the computer to organise your notes. This has made them clearer for you to understand and use in your leaflet. Well done.