Grade 7 Natural Science Worksheet

Assessment Task: Bacteria in food

Beneficial uses of bacteria

You have learned that bacteria are tiny micro-organisms that can cause diseases.
Did you know that bacteria are used in the making of yoghurt? Where do the bacteria come from? You need to use a sample of yoghurt with live bacteria in it to start a new culture of yoghurt. When you grow bacteria, you say that you are making a **culture** of bacteria.

What you have to do:

1. You need to convert this ordinary recipe into a scientific method for making yoghurt.
[14 marks]
2. Make a batch of yoghurt. Taste-test your yoghurt! Maybe you want to add a bit of sugar, honey or fruit to your batch of yoghurt to make it special.
You will self-assess your yoghurt and then peer-assess a friend's yoghurt. Use the checklist below the recipe to help you assess the yoghurt fairly.
3. Remember to clean up in the classroom when you have finished this activity.
You will be assessed according to the rubric below.
[6 marks]

Yoghurt recipe

Ingredients:

1 litre milk

250 ml plain yoghurt (Make sure you get the fresh yoghurt that has 'live cultures' in it; long-life yoghurt will not work.)

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Method:

1. Make sure all your pots, spoons, thermos flask and hands are very clean.
2. Gently warm the milk in a pot on the stove until it is just before boiling point. (This step will kill any of the 'wrong' bacteria in the milk which will interfere with the yoghurt making process.)
3. Allow the milk to cool with the lid on the pot. You should be able to put your (clean) finger in the milk without it feeling too hot. If the milk is too hot it will kill the bacteria in the yoghurt.
4. Gently stir in the yoghurt. Mix well.
5. Pour the mixture into a thermos flask and seal.
6. Leave overnight.
7. The next morning you should have delicious fresh yoghurt!

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Checklist for making tasty yoghurt

Criteria	Comments on my yoghurt	Comments on my friend's yoghurt
White/creamy appearance with no lumps.		
No separation of the yoghurt (this indicates that the milk was contaminated and it curdled).		
Taste of the natural yoghurt is tangy; not sweet and not like sour milk.		
Taste of the flavoured yoghurt is appealing – I would buy this yoghurt!		

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Rubric for Working in the Lab/Classroom

Criteria	3 marks: Outstanding achievement	2 marks: Good achievement	1 mark: Poor achievement	0 marks: Not achieved
Learner worked neatly and hygienically during the making of the yoghurt.				
Learner cleaned up the work area perfectly and left all equipment washed, dried and packed away.				

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Suggested Solutions

Question number	Possible marks	Solution
1	2 marks – research question 2 marks – hypothesis 2 marks – apparatus list 4 marks – methods 2 marks – results 2 marks – conclusions	Learners must convert the recipe into a scientific method. Make sure all the headings are present. There should be a **research question** (e.g. Can we make yoghurt?). A **hypothesis** (e.g. We can make yoghurt from existing yoghurt and milk). List what **apparatus** will be needed. The **method** must be stated in order and in point form. **Results** and **conclusions** should be given.
2	No marks, unless learners want to assign marks.	Self and peer assessment according to checklist and comment sheet – see Appendix of Assessment Tools.
3	6 marks	Add marks to those obtained for Question 1.

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Appendix of Assessment Tools

Checklist for making tasty yoghurt

Criteria	Comments on my yoghurt	Comments on my friend's yoghurt
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Criteria	3 marks: Outstanding achievement	2 marks: Good achievement	1 mark: Poor achievement	0: Not achieved
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Level indicator for this task

Level 4	Level 3	Level 2	Level 1
Learner able to convert the recipe into a scientific protocol with ease and accurately; able to constructively self and peer assess a product; able to work hygienically and responsibly in the lab.	Learner able to convert the recipe into a scientific protocol with relative ease; able to perform a good self and peer assessment; able to work fairly hygienically and responsibly in the lab.	Learner has difficulty in converting the recipe into a scientific protocol; able to perform a fair self and peer assessment; needed help working hygienically and responsibly in the lab.	Learner unable to convert the recipe into a scientific protocol; unable to perform a self and peer assessment; did not work hygienically and responsibly in the lab.