Province of the
EASTERN CAPE
EDUCATION

O.R TAMBO INLAND EDUCATION DISTRICT

TERM 3 PRACTICAL EXEMPLAR TASK

GRADE 7

SUBJECT: NATURAL SCIENCES

TERM 3 FORMAL ASSESSMENT TASK

2022

Name: _____

Class: _____ Date: _____

School: _____ Teacher: _____

MARKS OBTAINED = | | / 60 |

INSTRUCTIONS:

- Learners will conduct this experiment in groups.
- The teacher will decide on the number of learners each group must consist of.
- The teacher must supervise learners when working with hot water.
- Remind learners about safety measures they should follow during the investigation.
- Learners should write down their sources of information (bibliography) in the space provided at the end of the activity.
- Learners must clean up their stations after the work is done.

ACTIVITY 1

INVESTIGATION: Which is the best heat insulating material amongst the given materials?

AIM: Write down an aim for this investigation. (2)

_____

_____

MATERIALS AND APPARATUS:

- 4 beakers or tins
- 4 alcohol thermometers
- Aluminium foil
- Fabric
- Newspaper
- Plastic
- Kettle
- Timer or stopwatch

METHOD:

NOTE
Make sure that the layers of newspaper, plastic and fabric are the same thickness so that the thickness of the material does NOT vary in the investigation.

1. Wrap one beaker with newspaper, one beaker with plastic, one beaker with aluminium foil and the fourth beaker with fabric.
2. Boil water in a kettle.
3. Pour 250 ml of boiling water into each beaker.
4. Put a thermometer in each beaker.
5. Measure the starting temperature of the water and then measure the temperature of the water every 5 minutes for half an hour (30 minutes).
6. Write the measurements in the table in the results section.
7. Draw graphs in the same system of axis representing the data you have collected.

RESULTS AND OBSERVATIONS:
Record your results in the following table. (4)

Time (Minutes)	Temperature of beaker with **aluminium foil**	Temperature of beaker with **plastic**	Temperature of beaker with **newspaper**	Temperature of beaker with **fabric**
0				
5				
10				
15				
20				
25				
30				

Use the following space to draw a line graph for each type of material. You must plot ALL of these graphs on the same set of axes. (7)
First, we need to think about which data is put on each axis.

1. What will you plot on the horizontal x-axis? This is the independent variable. (1)

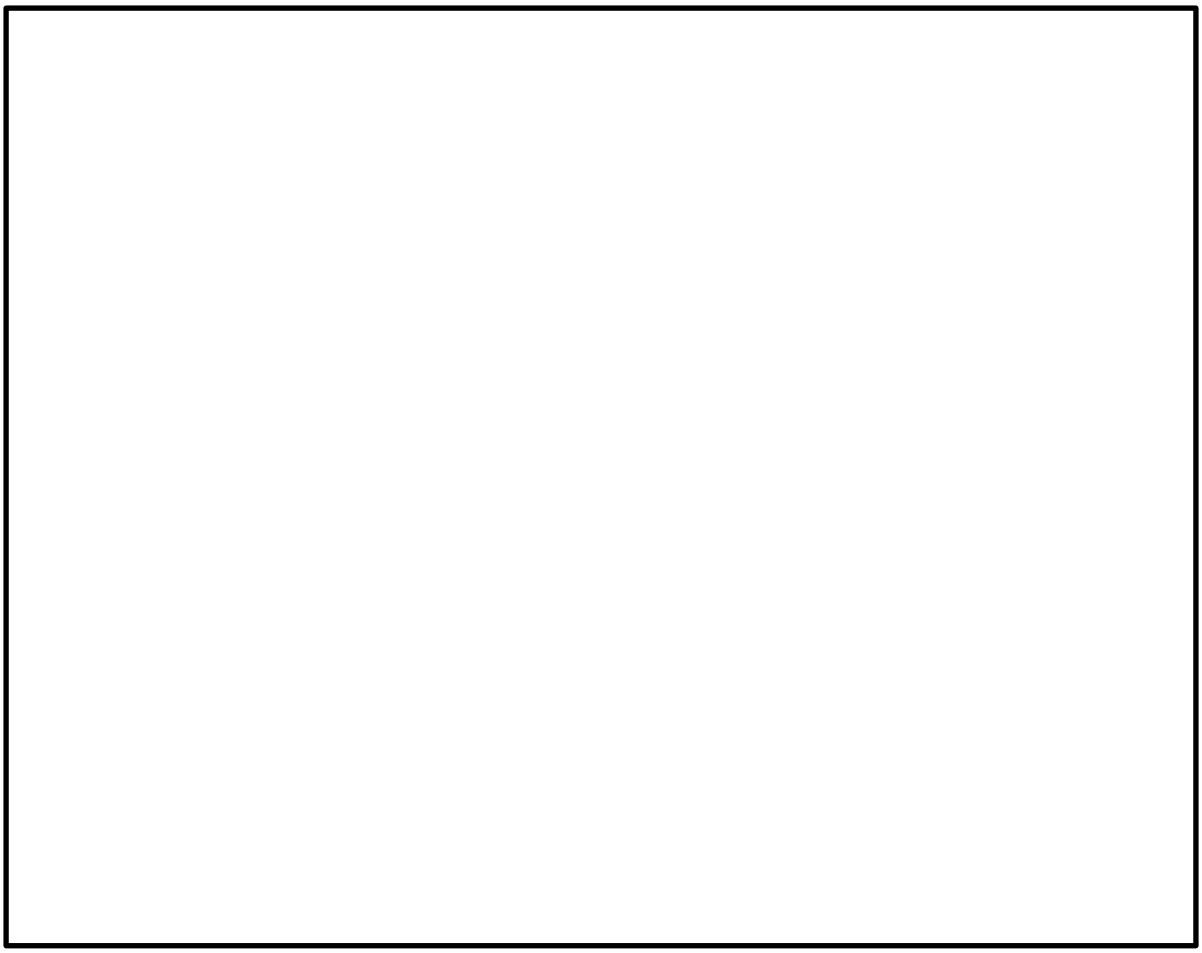
   _____

2. What will you plot on the vertical y-axis? This is the dependent variable. (1)

   _____

3. How are you going to show a difference between the lines for each type of material on one graph? (1)

   _____



ANALYSIS:

1. Which of your graphs has the steepest curve? (1)

   _____

2. What does the steepness of the curve tell you about how quickly the material allows heat to leave the water? (2)

   _____

3. Arrange the materials in order from very good insulator to poor insulators of heat. (2)

   _____

4. Which material was the best conductor of heat? Explain your choice. (2)

   _____

   _____

5. Which material was the best insulator of heat? Explain your choice. (2)

   _____

   _____

6. If you had to keep a bottle of water cold for as long as possible, which of the 4 materials would you choose? Explain your choice. (3)

_____

_____

_____

CONCLUSION:

Write a conclusion for this investigation. (2)

[30]