**Canadians and the Weather**

**Investigating the Effect of Weather on House Building Materials**

**Task**

Investigate the effect of rain, and heat or cold on building materials used by Aboriginal Peoples and early settlers in Canada. Select different building materials and design an experiment to test the effectiveness of the materials against rain. Using the same materials, design a second experiment to test the effectiveness of the materials against heat or cold.

**Materials**

sod

animal hides

birch bark

elm bark

cedar bark

soil

spruce boughs and soil

cedar planks

other wood planks

stone

brick

wood shingles

slate shingles

sheet metal

ice block

desk lamp with incandescent bulb, or spot light, retort stand and clamp

thermometers

spray bottle

water

paper towels

**Prediction**

Select **at least** two of the available materials to test. Choose at least one Aboriginal house material. Decide whether you are going to test for effectiveness against heat or cold.

The materials that I am going to investigate are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

I think \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be most effective against rain.

I think \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be most effective against heat/cold (circle one).

**Safety**

The lamps will get hot. Do not touch the lamps.

**Design**

Draw a well-labelled sketch of your experimental setup to test for effectiveness against rain. (2I, 2C)

Are you going to test the material for effectiveness against heat or cold? (Circle one)

Draw a well-labelled sketch of your experimental setup. (2I, 2C)

**Observation Tables**

Design a well-labelled table to record the effect of rain on each of your selected materials. (3I, 1C)

Design a well-labelled table to record the temperature every 2 minutes from 0 to 14 minutes. (3I, 1C)

**Action**

Show the teacher your prepared design sketches and observation tables so you can get your materials.

**Conclusions**

1. Rank your materials from least to most waterproof. (1K) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Do your results support your prediction? (1I) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Explain why the most waterproof material was more effective. (1I) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What challenges would Aboriginal Peoples or early European settlers face with your least waterproof material? (1A) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Rank your materials from greatest heat transfer to least heat transfer. (1K) \_\_\_\_\_\_\_

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1. Do your results support your prediction? (1I) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Explain why the material that allowed the least heat transfer material was the best insulator. (1I) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Do you think the outcome would be different if you had tested for heat instead of cold, or cold instead of heat? Why / why not? (1A) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What challenges would Aboriginal Peoples or early European settlers face with your least insulating material? (1A) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Which of the materials that you tested do you think is the best building material for building a house? Why? (1A) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What could you do to improve your experiment(s)? (2I) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Evaluation Scheme**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | **Knowledge and** **Understanding** | **Thinking and Investigation** | **Communication** | **Application** |
| **Design** |  | **/4** | **/4** |  |
| **Observation Tables** |  | **/6** | **/2** |  |
| **Conclusions** | **/2** | **/6** |  | **/4** |