

## WORKSHEET 13

### Activity - Homemade Dew and Frost

Print and copy this worksheet for use in the classroom.

#### Purpose

To show that air contains water.

#### Equipment

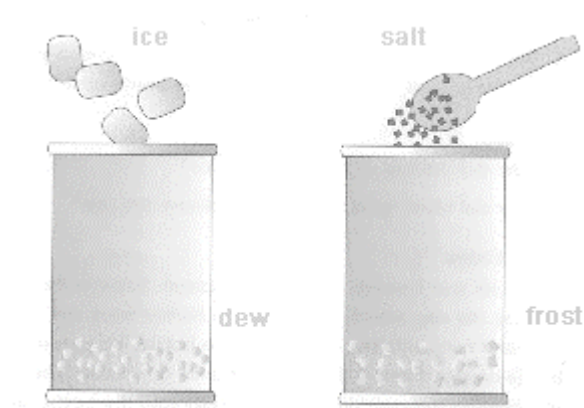
- empty can with its label removed.
- ice cubes
- salt

#### Initial Questions

1. What do you notice about your breath on cold mornings?
2. On some mornings grass and leaves may be very damp even though it hasn't rained during the night. Where does this water come from?
3. What do you see on the outside of a bottle, jar or can when you take it out of the fridge?

#### Procedure

1. Half fill the can with ice and set it aside for 10 minutes.
2. Once you have examined the moisture that has condensed on the outside of the can, add a couple of teaspoons of salt.
3. Gently swirl the contents of the can a few times and put it down. Set the can aside for 10 minutes.



## Questions

Answer the following questions in the spaces provided.

1. Why does the water condense to form droplets of dew on the can?
2. What does salt do to the temperature of the ice in the can?
3. What did you observe on the outside of the very cold can?
4. Why do you think that frost forms on the outside of the can when salt is added to the ice?

## Explanation

The ice cools the can and the air in contact with it. As the air cools, water from the air condenses as dew. Adding salt to the ice cools the temperature to below freezing point ( $0^{\circ}\text{C}$ ). Now rather than dew forming, crystals of ice, known as frost, form.

Tiny droplets of dew often form at night on cold surfaces such as grass and leaves. In deserts, dew may be the only form of moisture available to plants and animals.

On clear, still nights the temperature at ground level can fall to below  $0^{\circ}\text{C}$ . When this happens, water vapor can turn into solid crystals of frost. Frost can be very damaging to crops such as wheat.

Frost doesn't usually occur on cloudy nights. Clouds trap in heat, acting like a blanket. Frost occurs more often in valleys than higher areas because cold air is dense and

flows down the valley slopes.

When warm, moist air rapidly cools, tiny droplets of water may form and stay suspended in the air. This is fog. Fog is sometimes called low cloud. Warm sea breezes often produce fog when they move over colder land surfaces. Fog is often thickest in valleys and low-lying areas.

### **Extension Activity**

Examine frost under a microscope. Describe what you observe.

Frost can cause great damage to crops. Find out how frost harms plants and where it generally occurs. How do farmers try to combat frost?

### **Fact File**

Jack Frost is a fictional elf-like character, part of a Scandinavian legend. According to Norse mythology, the son of the god of the winds was Jokul (meaning icicle) or Frosti (frost). It is Jack Frost who is supposedly responsible for the patterns formed by frost.

*This activity is courtesy of  
the Cooperative Research Centre for Southern Hemisphere Meteorology*