

THE MISSING WATER MYSTERY

GROUP-WORK BOOKLET

Detective X needs your best ideas!



Please discuss questions on the worksheets in this folder when your teacher asks you to.

This folders belongs to:

Detective _____
Detective _____
Detective _____
Detective _____

School: _____ Year Group: _____ Date: _____



Worksheet 1

The missing water mystery. What's our theory?

This picture shows two towels that were wet when they were hung up in a classroom. Now all the water has gone and they are completely dry.



In your group discuss the questions about the water missing from the towel. You may also want to talk about Detective X's ideas. Agree your ONE best answer to each question and write it down.

1. What do you think has happened to the water which has gone missing from the towel?

(Detective X thinks the water may have soaked into the material or it may have gone up into the sun or into the air.)

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Why do you think this?

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2. What do you think has made the water go?

(Detective X thinks the water may have been taken by a thief, it may have just gone on its own or the sun or wind may have made it go.)

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Why do you think this?

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Worksheet 2

Group thinking sheet

This worksheet asks you to work in your groups to think some more about what happens to water when it evaporates.

a) The Disappearing Hand and the Evaporating Perfume Test.

Agree your answers to these questions and write down the answers.

Describe what happened to the handprints.

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Why do you think that children around the classroom smelled the perfume at different times?

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What do you think happened to the liquid perfume?

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What was similar about the evaporating hand and the evaporating perfume?

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Now explain what you think happened to the water that you used to make the evaporating hand.

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b) Your New Improved Theory.

Read over what you wrote on pages 2 and 3 about your best group idea about what happened to the water. Do you want to change your ideas about what happened to the water which went missing from the towel?

If you want to change your best group ideas please discuss them and then write your new improved ideas here.

● **What happened to the water that went missing from the towel?**

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Why do you think this?

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Worksheet 3

Planning an investigation

YOUR THEORY

Please write your **one** best group idea about **what** made the water from the towel go.

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Your detective group are going to test this idea. Use this sheet to help you decide how you will do the test. You may need some rough paper as well.

You will need to agree each part of the test as a group before you write it down. You can ask your teacher to help with anything the group is not sure about.

YOUR TEST

Use some of this equipment to help test your theory:

- Saucers and drops of water (instead of puddles).
- Pieces of kitchen towel and water (instead of wet cloths or towels).

You may need some other equipment as well.

YOUR PLAN:

Explain what you will do to test your idea. (Use drawings to help if you want to).

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List the equipment you will use here.

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What is the one thing you will change in your test?

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What will you keep the same to make your test fair?

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What are you going to record so that you know what happened in the test?

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Check your test with your teacher then follow your plan.



Worksheet 4

Analysing the results of your test

Discuss these questions about your test. Write down the answers which you agree.

What happened in the test?

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Why do you think this happened?

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What was your theory about 'What made the water go'?

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Does your test make you think this theory is right? Why?

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Does your test make you think this theory is wrong? Why?

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OUR FINAL THEORY

Now you have tested your idea your group may decide to change their theory about what made the missing water go.

Discuss and agree whether you want to make any changes. Write down your final theory below.

Now our best idea about what made the water go is

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We think this because.....

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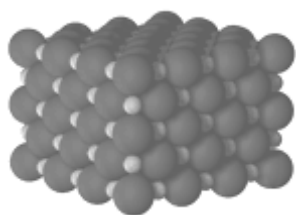
Detective X's notes on **SOLID, LIQUID AND GAS**



The Scientists say that water can be found in a solid form (ice), a liquid form (water) and a gas form (water vapour). The Scientists told me about their theory that everything is made of very small pieces of 'stuff' called particles. They say that you can understand differences between a solid, liquid and gas by thinking about what particles do in a solid, liquid and gas.

SOLID (e.g. ice)

- Particles have little energy.
- Particles are packed closely together.
- Particles cannot move away from their positions so a solid keeps its shape.



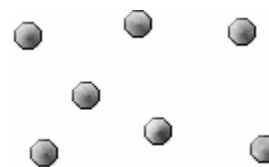
LIQUID (e.g. water)

- Particles have more energy.
- Particles are close to each other but not as close as in a solid.
- Particles in a liquid can roll around each other so a liquid can change its shape.



GAS (e.g. water vapour)

- Particles have a lot of energy.
- Particles in a gas are a long way apart.
- Gas particles move around quickly and will spread out into the room which is available.





Worksheet 5

Solid, liquid and gas

You have been thinking about the differences between solids, liquids and gases in terms of the way particles are packed together.

Water can be found as a solid (ice), a liquid (water) or a gas (water vapour). Can you use your understanding about **liquid** and **gas** to explain a bit more about what happens when water evaporates?

Discuss these questions and write down your agreed theory about what happens to particles.

Did the water begin as a solid, liquid or gas? Did it change to a solid, liquid or gas?

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What made the water change?

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What happened to the water particles?

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