

تم تحميل هذا الملف من موقع المناهج الإماراتية



المدف حل الؤءة الأولى الماده Matter من كتاب Science Inspire

موقع المناهج ← المناهج الإماراتية ← الصف الخامس ← علوم ← الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب الصف الخامس



روابط مواد الصف الخامس على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

المزيد من الملفات بحسب الصف الخامس والماده علوم في الفصل الأول

[قطر الصف الخامس علوم بنك أسئلة روابط مباشرة pdf](#)

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UNITED ARAB EMIRATES
MINISTRY OF EDUCATION



Grade 5 • Unit 1

Student Edition



Inspire Science

UAE Edition
Grade 5
2021-2022



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Graw
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Matter

ENCOUNTER THE PHENOMENON

How can you make
the best pancakes?



GO ONLINE

Check out *Pancake Transformation* to see the phenomenon in action.

Talk About It

Look at the photo and watch the video of pancakes on an electric griddle. What questions do you have about the phenomenon? Talk about them with a partner.

Did You Know?

Pancakes can be found in almost every culture. The largest pancake ever made was almost 15.24 meters (50 feet) in diameter!



STEM Module Project Launch Engineering Challenge

Design the Perfect Pancake

Lesson 1
Identify
Properties of
Matter



Lesson 2
Mixtures and
Solutions



Lesson 3
Physical and
Chemical
Changes



Lesson 4
Solids,
Liquids, and
Gases



Have you ever wondered how to make the best pancake? You are going to use the skills of a culinary scientist to develop the "best" pancake. By the end of this module, you will identify the criteria and the different materials needed to make the best pancake. Your goal is to design and test the behavior of mixing different materials to make the best pancake.



What would a culinary scientist need to keep in mind when planning a meal?

Sample answer: Culinary scientists need to know how the ingredients are going to taste together. They will also need to know how the ingredients will react when they are cooked.

Culinary scientists apply their knowledge of ingredients to develop new food products that can be produced and sold to consumers in the stores. They perform research, test their ideas, and maintain safety standards so that the new or improved food items can be enjoyed by the public.

What would the perfect pancake be like?

Sample answer: The perfect pancake will be fluffy, golden brown, and moist.



STEM Module Project

Plan and Complete the Engineering Challenge You will use what you learn about matter to design the perfect pancake!

LESSON 1 LAUNCH

Is it Matter?



Four friends were talking about matter. They each had different ideas about the kinds of things that are matter. This is what they said:

Abe: I think something needs to be solid to be matter.

Kayla: I think matter can be a solid or a liquid.

Curtis: I think matter can be a solid, liquid, or gas.

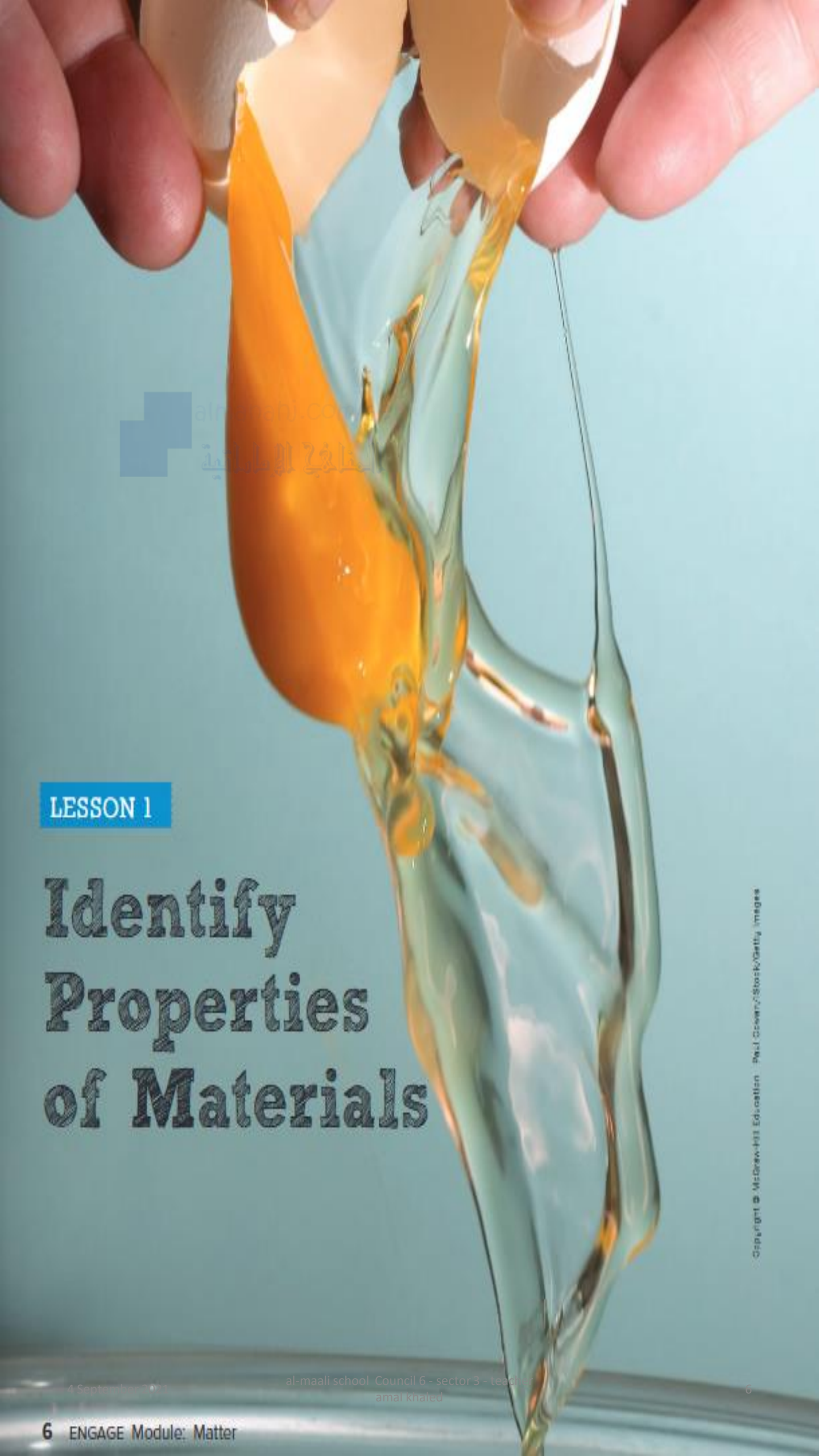
Lori: I think matter can be a solid, liquid, or gas, but it doesn't include living things.

Who do you agree with most? Curtis

Explain why you agree.

Sample answer: Matter is made of particles and is what makes up all objects. Matter can be in the form of a solid, a liquid, or a gas.

You will revisit the Page Keeley Science Probe later in the lesson.



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LESSON 1

Identify Properties of Materials

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ENCOUNTER

THE PHENOMENON

What are the properties of eggs?



GO ONLINE

Check out *Egg Cracking* to see the phenomenon in action.

Look at the photo and watch the video of an egg cracking. Think about ways that you have seen eggs being used. What questions do you have?

Sample answer: Are all eggs the same size, color, and texture? What properties of eggs are essential for food preparation? Can a different material besides eggs be used without affecting the food product?

Did You Know?

The average hen lays 250–270 eggs per year!



INQUIRY ACTIVITY

Hands On

Test Matter's Properties

Think about the egg cracking. The egg has many different properties. All matter has different properties based on how it interacts with other matter.

Make a Prediction How can we test the properties of matter?

Sample answer: We can test how well matter conducts heat or is magnetic.

Carry Out an Investigation

BE CAREFUL Wear safety goggles. Be careful with any sharp or pointy edges on the materials.

1. Hold one end of each object (one at a time) in the ice water for thirty seconds. Did the end you were holding get cold? Record the results in the table on the next page.
2. Pick up each object and gently try to bend it. Did it bend easily? Record the results.
3. Touch the magnet to each of the objects. Did it stick? Record the results.
4. Hold each object under a light. Is it shiny? Record the results.
5. Leave the last column empty for now. You will be revisiting this activity later in the lesson.



Materials



safety goggles



acrylic rod



paper clip



rubber eraser



aluminum foil



copper wire



wooden toothpicks



magnet



plastic bowl



ice cubes



water

How could you compare how much flexibility different materials have?

Sample answer: We could measure how much force it takes to bend different materials.

Record Data

Object	Did it get cold?	Could you bend it?	Did the magnet stick to it?	Is it shiny?	What property does it have?
Acrylic Rod	No	No	No	Yes	reflectivity
Paper Clip	Yes	Yes	Yes	Yes	magnetism
Rubber Eraser	No	Yes	No	No	flexibility
Aluminum Foil	Yes	Yes	No	Yes	conductivity
Copper Wire	Yes	Yes	No	Yes	conductivity
Wooden Toothpick	No	No	No	No	other

Communicate Information

6. Compare your results with your classmates. Would you expect to have similar results by following the same procedure? Explain.

Sample answer: I expect everyone to have similar results by carefully following the steps. Some difference might be a result of not measuring correctly.



Talk About It

Did your results support your prediction? Explain.

Why do you think the results of the class are mostly the same?

Sample answer: We all tested the same types of materials. The properties of each of these materials were consistent when the materials were tested by each group

VOCABULARY

Look for these words as you read:

chemical property

conductivity

magnetism

mass

matter

physical property

reflectivity

solubility

volume

Matter

Matter is anything that has mass and takes up space.

The water you drink, the air you breathe, and you are all made up of matter.

All matter is made of tiny particles.

Mass is a measure of the amount of matter in an object. The more mass an object has, the more particles an object has.

Think about holding a golf ball and a table tennis ball.

The golf ball is made up of more particles. It has more mass. As you hold the golf ball and table tennis ball, you are also feeling their weight. Weight is how strongly gravity pulls on an object.

The amount of space an object takes up is its **volume**. Volume describes how large or small an object is. A golf ball and table tennis ball have roughly the same volume.



These rocks all have a different mass and volume.

1. Think about an inflated balloon with a small bag of marbles that is half its size. Which one has more volume? Explain your answer.

Sample answer: The balloon has more volume, because it takes up more space.

2. Which one has more mass? Explain your answer.

Sample answer: The bag of marbles has more mass, because it contains more matter.

Cut out the Notebook Foldables tabs given to you by your teacher.
Glue the anchor tabs as shown below. Use what you have learned
about the properties of matter.

Glue your graph here.

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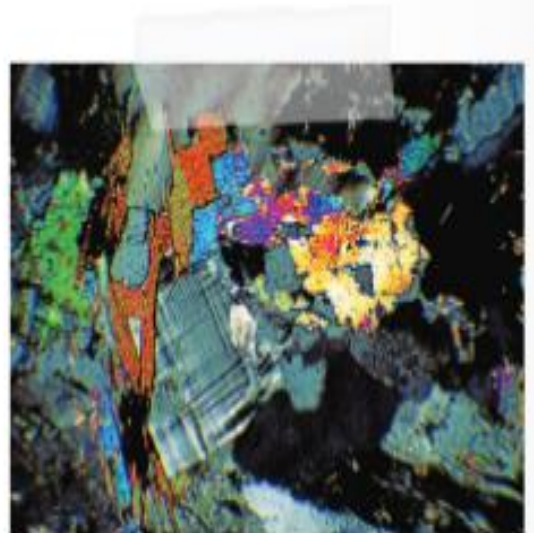
STEM Connection

What Does a Materials Scientist Do?



ENVIRONMENTAL Connection

A **materials scientist** tests how different materials can be used together. Materials scientists often try to combine matter into new materials with useful properties. Modern materials scientists combine and change materials based on an understanding of their properties and how matter is put together. They have a responsibility to make sure the materials they test and create are safe for the environment and how they will be used.



It's Your Turn

Think about the role of a materials scientist. As a culinary scientist, what information used by a materials scientist would help you in planning to design the best pancake?



Why do you think materials scientists work with materials on a very small scale?

Sample answer: Materials scientists need to work with particles in order for the very small parts to form a new substance or material.

Describe how an understanding of the properties of materials affects the work a materials scientist does. Sample answer: A materials scientist thinks about how the properties of matter may affect what happens when they are combined.



LESSON 1

Review

EXPLAIN
THE PHENOMENON

What are the properties of eggs?

Summarize It

Use what you have learned to explain how different types of matter have different properties.

Sample answer: Different types of matter have different properties. The egg in the photo has physical properties as well as chemical properties. Its physical properties are that it is contained in a hard shell that can break, and the inside of an egg is flexible. Eggs change when heated, which is a chemical property.

REVISIT



Revisit the Page Keeley Science Probe on page 5. Has your thinking changed? If so, explain how it has changed.



Three-Dimensional Thinking

1. Which property measures the space taken up by an object?
 - A. hardness
 - B. mass
 - C. volume**
 - D. weight

2. Use information you have obtained to explain how properties of matter can be measured.

Sample answer: Magnetism can be measured by placing a magnet close to an object, mass can be measured with a balance, and the volume of a liquid can be measured with a beaker or a measuring cup.

3. Describe at least three physical properties that can help identify copper.

Sample answer: Copper has a reddish-brown color and can take on many different shapes because it is able to be formed. Copper can conduct electricity and reflect light.

Extend It

Think about a problem you have seen in your community. How could your understanding of the properties of matter help you solve this problem?

Write a proposal to your town council with your solution to the problem.

Sample answer: I have noticed that the slides on the playground are metal and they get really hot on a sunny day. Sunny days are when we like to play on the playground, but the slides are too hot to slide down. I think we can replace the slides with plastic ones, since plastic is not as conductive as metal.

KEEP PLANNING

STEM Module Project
Engineering Challenge



Now that you have learned how to identify the properties of matter, go to your Module Project to explain how you can use the information as you plan to make the perfect pancake.

LESSON 2 LAUNCH

Salt and Water



A spoonful of salt has a mass of 10 grams. A cup of water has a mass of 300 grams. What do you predict will be the total mass of the saltwater when the salt is dissolved in the water? Circle the answer that best matches your thinking.

- A. more than 300 grams
- B. less than 300 grams
- C. 300 grams

Explain your thinking. What reasoning did you use to make your prediction?

Sample answer: Since the mass of the water is 300 grams, adding more mass to the water would increase its mass, even if the salt seems to disappear.

You will revisit the Page Keeley Science Probe later in the lesson.