

A large, stylized molecular model is integrated into the title. It features several grey spheres of varying sizes connected by white lines, representing atoms and bonds. The model is positioned behind the word 'SCIENCE' in the main title.

# Hooked on SCIENCE

**ON THE GO**

**STRUCTURE  
AND PROPERTIES  
OF MATTER**



# HOOKED ON SCIENCE ON-THE-GO

## STRUCTURE AND PROPERTIES OF MATTER

WATCH VIDEOS [Balloon Blow Up](#) | [Pop a Balloon with an Orange](#) | [Straw Worm](#)

### MATTER

**Matter** is anything that has mass and takes up space. Mass is the amount of matter in an object. Different kinds of matter exist and can be either solid or liquid, depending on temperature.

### STRUCTURE AND PROPERTIES OF MATTER

Matter of any type can be subdivided into particles or pieces too small to see, but even then, the matter still exists and can be detected by other means. An **atom** is the smallest unit of matter. When you combine two or more atoms you get a **molecule**.

**HOOKED ON SCIENCE** **MATTER**  
PROPERTIES OF MATTER

**THE BEACH UMBRELLA IS A SOLID. THE TINY PIECES THAT MAKE UP A SOLID ARE PACKED CLOSE TOGETHER IN A REGULAR PATTERN.**

**THE POOL FLOAT IS FILLED WITH A GAS. THE TINY PIECES THAT MAKE UP A GAS DO NOT STAY CLOSE TOGETHER OR FORM A REGULAR PATTERN.**

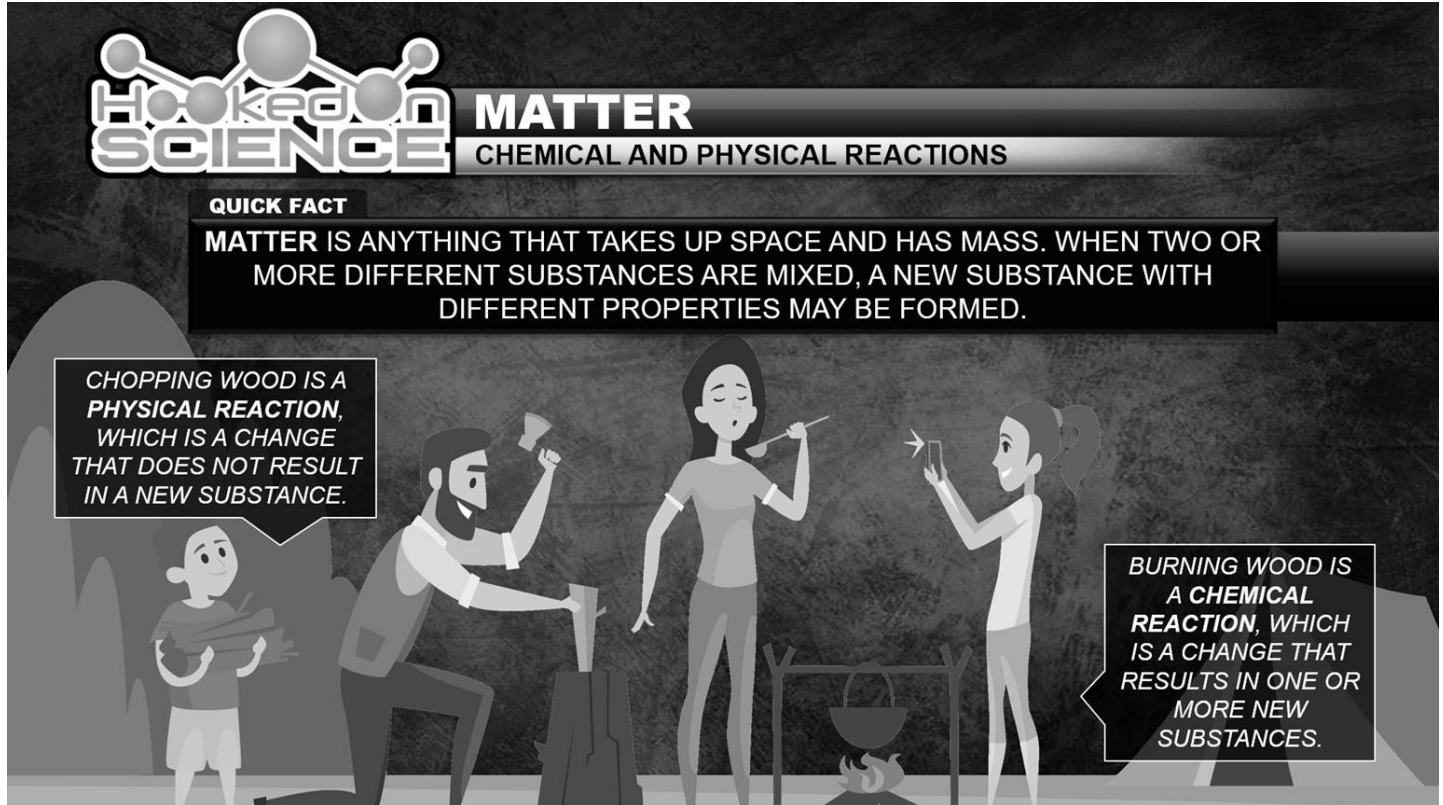
**THE WATER, IN THE POOL, IS A LIQUID. THE TINY PIECES THAT MAKE UP A LIQUID SLIDE PAST EACH OTHER, BUT STAY CLOSE TOGETHER. THEY DO NOT FORM A REGULAR PATTERN.**

**QUICK FACT**  
**MATTER IS ANYTHING THAT TAKES UP SPACE AND HAS MASS. MATTER CAN BE DESCRIBED AND CLASSIFIED BY ITS OBSERVABLE PROPERTIES. MATTER IS MADE UP OF TINY PIECES.**

Matter can be described and classified by its observable properties. Measurements of a variety of properties can be used to identify matter. Different properties are suited to different purposes.

## CHEMICAL AND PHYSICAL REACTIONS

When two or more different substances are mixed, a new substance with different properties may form. This is considered a **chemical reaction**, which is a change that results in one or more new substances. A **physical reaction** does not result in a new substance.



**Hooked on SCIENCE** **MATTER**  
CHEMICAL AND PHYSICAL REACTIONS

**QUICK FACT**  
MATTER IS ANYTHING THAT TAKES UP SPACE AND HAS MASS. WHEN TWO OR MORE DIFFERENT SUBSTANCES ARE MIXED, A NEW SUBSTANCE WITH DIFFERENT PROPERTIES MAY BE FORMED.

CHOPPING WOOD IS A **PHYSICAL REACTION**, WHICH IS A CHANGE THAT DOES NOT RESULT IN A NEW SUBSTANCE.

BURNING WOOD IS A **CHEMICAL REACTION**, WHICH IS A CHANGE THAT RESULTS IN ONE OR MORE NEW SUBSTANCES.

# HOOKED ON SCIENCE ON-THE-GO

## EXPERIMENT

### STRAW WORM

#### INGREDIENTS

- Straw with Paper Wrapper
- Water

#### INSTRUCTIONS

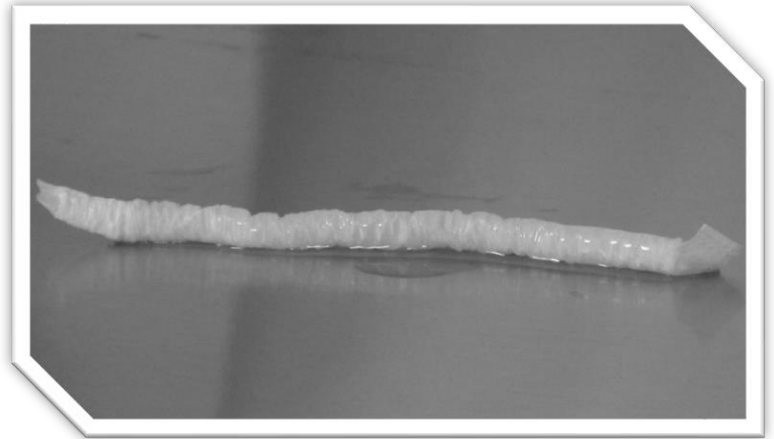
**STEP 1:** Using your fingers, completely scrunch the wrapper to the end of the straw.

**STEP 2:** Remove the scrunched-up wrapper and place it on a flat surface. Describe the scrunched-up wrapper by its observable properties. Using a ruler, measure the length of the scrunched-up wrapper. Record the length of the scrunched-up wrapper on a piece of paper.

**STEP 3:** Using the straw and your finger, slowly add a few drops of water to the scrunched-up wrapper and observe. Describe the scrunched-up wrapper by its observable properties. Using a ruler, measure the length of the scrunched-up wrapper. Record the length of the scrunched-up wrapper on a piece of paper. Using these measurements, identify the scrunched-up wrapper based on its properties.

#### EXPLANATION

Each time you added a drop of water, the straw paper absorbs the water, causing the scrunched-up wrapper to look like it is moving on the flat surface.



# HOOKED ON SCIENCE ON-THE-GO

## QUIZ

### STRUCTURE AND PROPERTIES OF MATTER

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**Write the word(s) from the box that completes each sentence.**

CHEMICAL REACTION	MATTER	MOLECULE
PHYSICAL REACTION	ATOM	

1. \_\_\_\_\_ is anything that has mass and takes up space.
2. An \_\_\_\_\_ is the smallest unit of matter.
3. When you combine two or more atoms you get a \_\_\_\_\_.
4. a \_\_\_\_\_ is a change that results in one or more new substances.
5. A \_\_\_\_\_ does not result in a new substance.

**Use complete sentences to answer the following questions.**

1. How do you know air, a gas, is made of tiny pieces?
  
  
  
  
  
  
  
  
  
  
2. Identify at least one chemical reaction and at least one physical reaction you observe while camping.