

Science - a branch of knowledge requiring systematic study and method, dealing with substances, life and natural laws.

Scientist - an expert in a science

Scientific Method for Investigations

Scientists try to find patterns in things and look for explanations for the pattern. The scientific method is a way of approaching and solving a problem, or answering a question.



Here's the recipe.

- **Ask a question.**
- **Gather information.**
- **Form a hypothesis, propose a solution.**
- **Test the proposed solution. Create an experiment.**
- **Evaluate the data. (Analysis) Is the hypothesis correct?**

Does it make sense?

- **Make conclusions and report results. Let others know.**
- **Make changes. Propose a better solution.**



If your methods make sense, then others may accept your hypothesis as a theory. If not, then your hypothesis may be rejected. There is always the possibility that new observations or new information will disprove a long-standing theory.

What is Matter?

Matter is anything that takes up space and has a mass

- It is anything that has a mass and volume

What is Matter?

Mass is the amount of matter in a substance. It is often measured in gram or kilograms

Volume is the amount of space a substance occupies. It is often measured in litres.

What is Matter?

Everything is made of matter

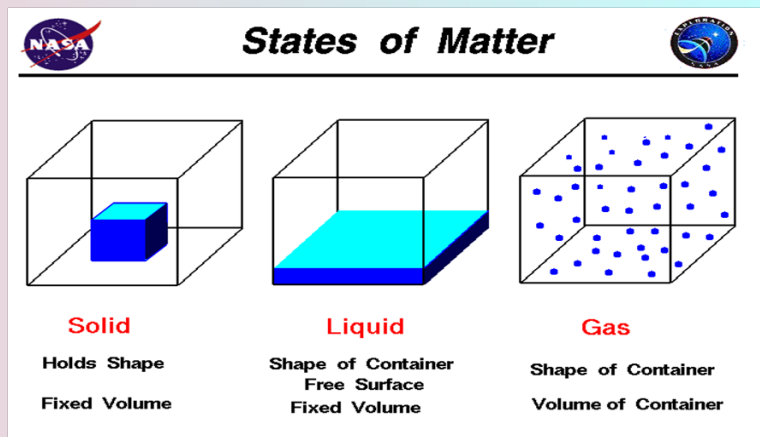
(water, food, computers, rocks etc)

Hey that's almost like
"Everything MATTERS"

Properties of Matter

- Matter can be found in three phases

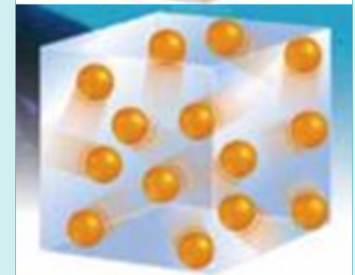
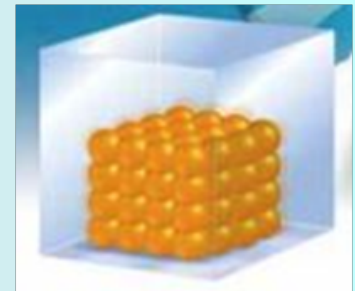
- > Solid
- > Liquid
- > Gas

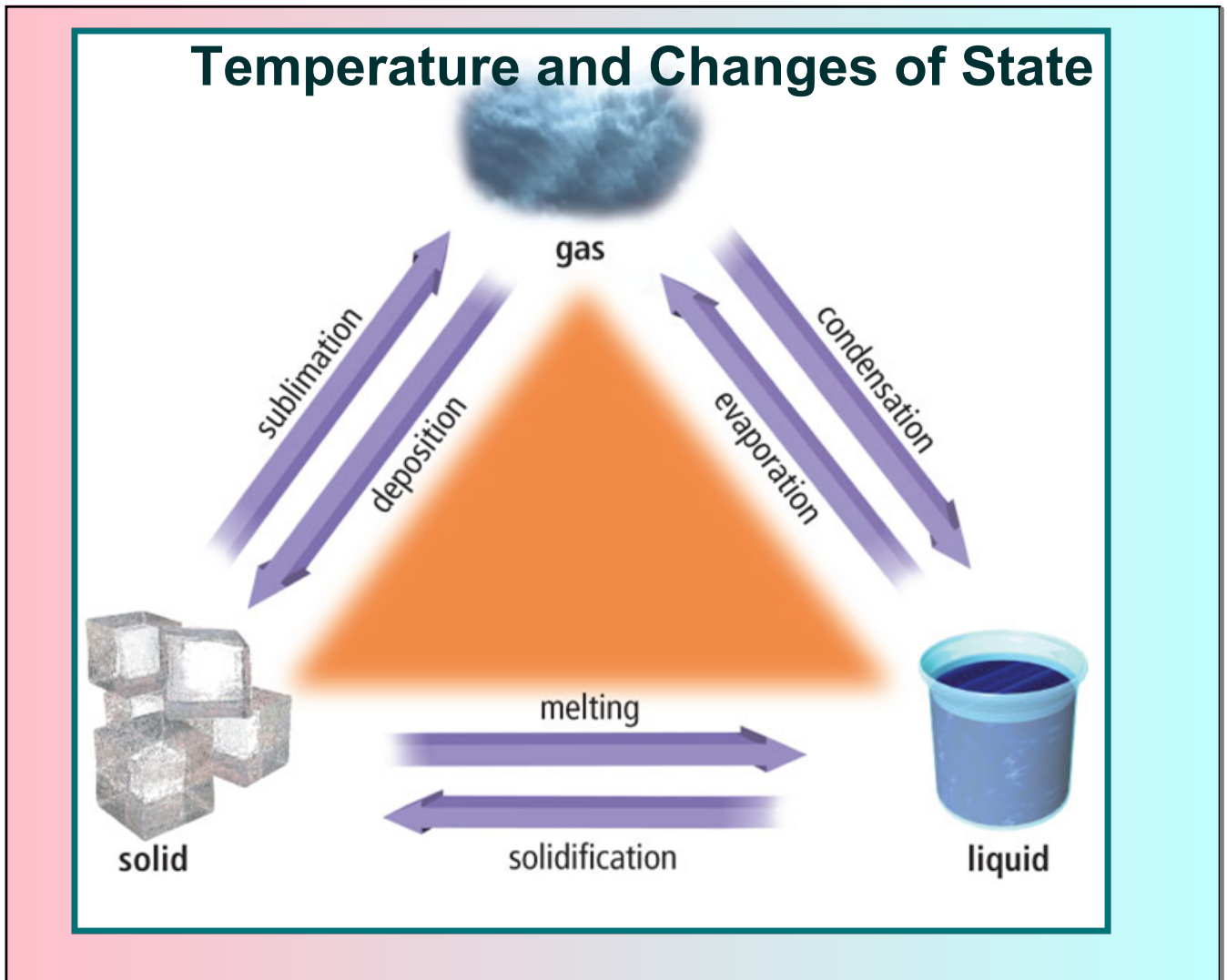


Think of an example of matter that exists in all three states?

Properties of Matter

- Matter is made of small particles. There are empty spaces between all of these particles that allow the particles to move.
- > **Solid particles** are packed together and cannot move freely. They only vibrate.
- > **Liquid particles** are farther apart and can slide past each other.
- > **Gas particles** are far apart and move around quickly.

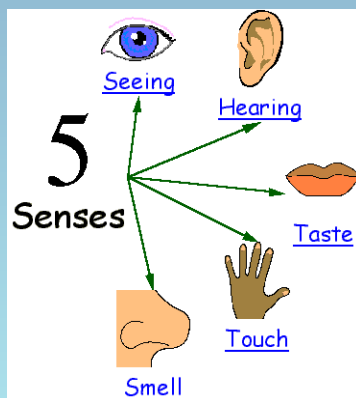




Physical Properties

One of the physical properties of matter is its state.

Another way to describe physical properties is using our senses.



What could we observe from each of the 5 senses?

- i) **Sight:** color, bright, dull
- ii) **Hearing:** Bubbling, crackling, snapping
- iii) **Taste:** sweet, salty, bitter
- iv) **Touch:** Rough, soft, slimy,
- v) **Smell:** Sweet, rotten,

Physical Properties

page 16, Table 1

Property	Describing the Property
1. Colour	Is it black, white, colourless, red, greenish-yellow?
2. Texture	Is it fine, coarse, smooth, gritty...?
3. Odour	Is it odourless, spicy, sharp, burnt...?
4. Lustre	Is it shinny, dull..?
5. Clarity	Is it clear, cloudy, opaque....?
6. Taste	Is it sweet, sour, salty, bitter...?

Copy in your notebooks

Pictures to follow

Name of Substance	Physical Properties (use pg 16 table 1 as a guide omit taste)	State of matter
a) Oxygen	colorless, smooth, odorless,cloudy	gas
b) Cocoa Powder	brown, fine powder, bitter dull	solid
c) Water with food coloring	red, smooth, odorless, dull	liquid
d) Olive Oil	yellowish, oily, cloudy	liquid





Oxygen that we breathe



Coco powder



Water and food coloring



olive oil

Safety is **IMPORTANT** !!!!



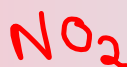
How many unsafe practices can you identify?





Oxygen is a helpful chemical we all need it to breath and survive

oh!
oxygen



Nitrogen dioxide from a car exhaust, propane gas, is a harmful chemical is we inhale too much it can harm us



Substance Safety to use or not to use?

- Look at the warning symbols that are placed on the container.

Can you think of some examples of products where you have seen warning labels before?

Substance Safety to use or not to use?

- Look at the warning symbols that are placed on the container.

Can you think of some examples of products where you have seen warning labels before?



Did you know?????

If a container has the words: **POISON**, **DANGER**, **WARNING** or **CAUTION** on the label and still has product left over it cannot go in the trash.

**EXPLOSIVE**

Aerosols,
propane
cylinders

POISON

Pesticides,
chemicals,
rat poison,
bleach,
pharmaceuticals
cleaning fluids

CORROSIVE

Batteries,
drain cleaners,
oven cleaners

FLAMMABLE

Paint, solvent,
oil, gasoline,
BBQ starters

WHMIS Symbols

- **Workplace Hazardous Materials Information System (WHMIS)**
 - A method of ensuring everyone has access to appropriate safety information about any substance they may encounter that is manufactured or sold

Part 2 of video

- WHMIS is a system of 8 symbols



Other Safety Symbols

- Hazard symbols can be found on a variety of commercial products.
- There are two kinds of warnings

1. Borders

- Dangerous Container



- Dangerous Product



Other Safety Symbols II

2. Hazards

– Explosive



• Flammable



– Corrosive



• Poisonous



INTERNATIONAL HAZARD SYMBOLS

POISON



DANGER



WARNING



CAUTION

INTERNATIONAL HAZARD SYMBOLS

FLAMMABLE



DANGER



WARNING



CAUTION

INTERNATIONAL HAZARD SYMBOLS

EXPLOSIVE



DANGER



WARNING



CAUTION

INTERNATIONAL HAZARD SYMBOLS

CORROSIVE



DANGER



WARNING



CAUTION

Using the symbols handout complete the following in class assignment

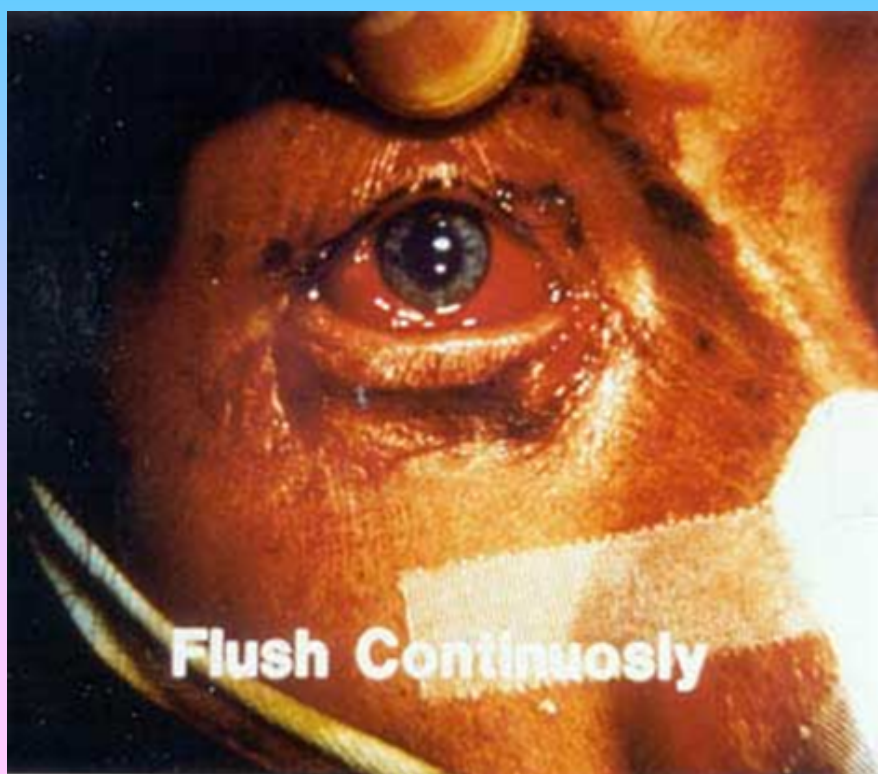
safety symbols assignment.doc



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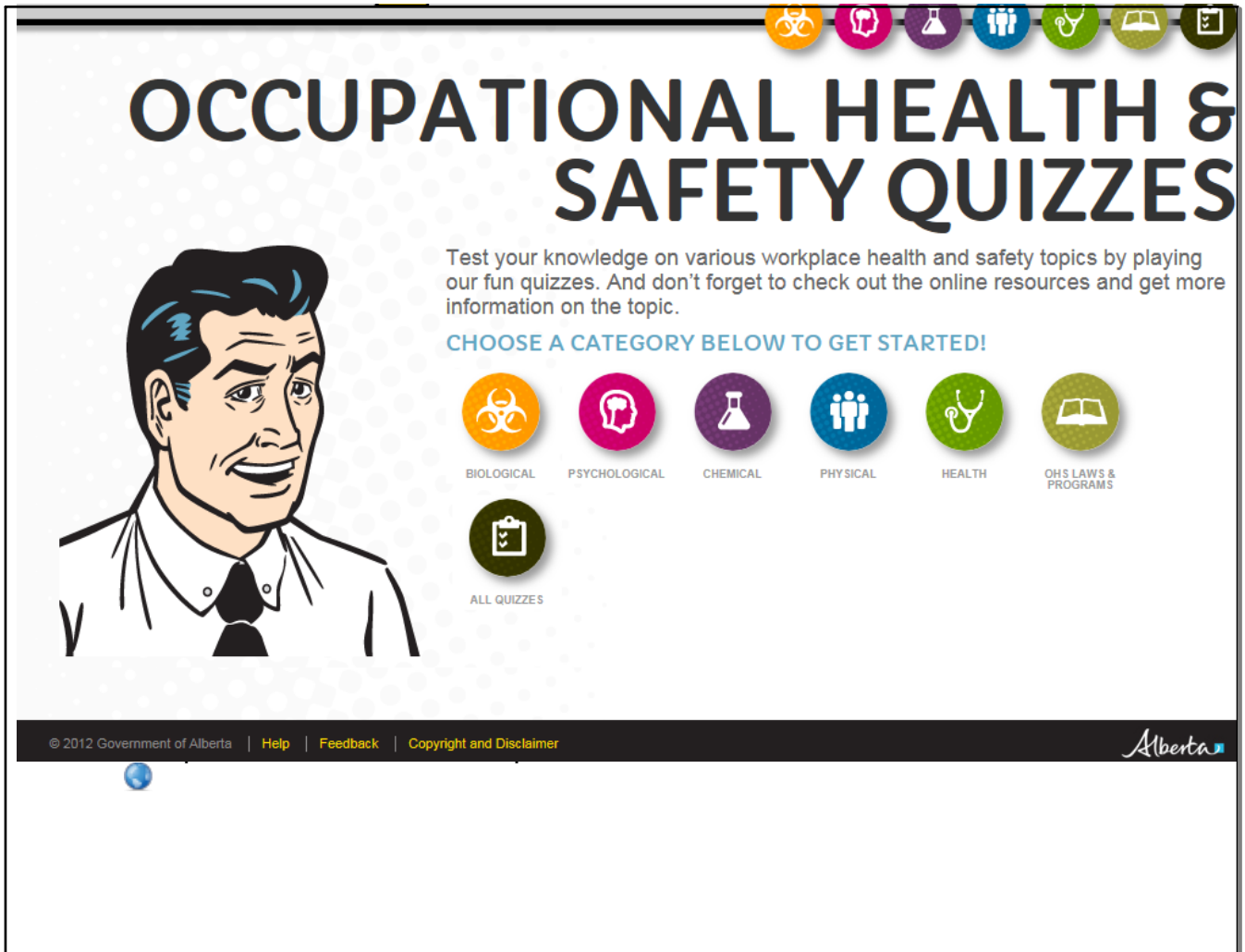
What Can Happen if you dont follow the safety rules?

Chemical Burns



Chemical Burns











OCCUPATIONAL HEALTH & SAFETY QUIZZES

Test your knowledge on various workplace health and safety topics by playing our fun quizzes. And don't forget to check out the online resources and get more information on the topic.

CHOOSE A CATEGORY BELOW TO GET STARTED!

-  BIOLOGICAL
-  PSYCHOLOGICAL
-  CHEMICAL
-  PHYSICAL
-  HEALTH
-  OHS LAWS & PROGRAMS
-  ALL QUIZZES

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In Class Assignment

Turn to pg 15

Complete Part 2: Setting Safety Rules with a partner or on your own:

At the top of your sheet write:



Your name:

Part 2: Setting Safety Rules

Date:

Do not rewrite the questions, just the answers beside the appropriate letter.

Example:

(a) Yes, you should always wear goggles to prevent eye damage.

HW: complete setting safety rules pg 15 (a-i)

Answers to Part 2: Setting Safety Rules pg.15 11 marks

- a) Yes, you should always wear goggles to prevent eye damage. (1)
- b) Yes or no. Depending on what teacher says. (1)
- c) Yes, to receive first aid. (1)
- d) Notify the teacher before the activity. (1)
- e) No. It is unsafe to have food in the lab. (1)
- f) Touching and smelling only when directed by the teacher.
NEVER TASTE ANYTHING!! (2)
- g) Rinse hands with lots of water. (1)
- h) Immediately flush the eyes with water at the eye wash station. (1)
- i) Use specially marked containers. (1)
- j) Report the problem to the teacher. (1)

Attachments

safety symbols assignment.doc