13.1 States of Matter

Physical Science

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction

Summarize your understanding of each paragraph.

Ok. Get ready to read something kind of weird. Ready?

……..

You can not “make something cold” … you can only “make something less hot.” (SAY WHAT?).

Weird, right? Think of a refrigerator for a second. It SEEMS like a refrigerator makes things colder. And while in day-to-day language, it sort of does do this … as a science student you deserve the full truth. A refrigerator REMOVES heat, it does NOT “add cold.”

As you learn more and more about matter, you will learn more about thermal energy. Thermal energy (heat energy) is an important property of matter. For example, by adding thermal energy to liquid water, the water will evaporate into steam (water in gas form).

By removing thermal energy (heat energy) from liquid water, you may cause the water to freeze. Frozen water is commonly called ice. Adding and removing heat from a substance sometimes causes a physical change (a change in state) or may cause a chemical change.

Read/Summarize Text

1. **Read the passage.**
2. **Underline key expressions in each sentence.**
3. **Re-write each word (or expression) you underlined.**
4. **Summarize the passage.**

Heat.

1

2

You can usually warm something by adding energy. The added energy can be from light, electricity, friction, a chemical reaction, nuclear reaction, or any other kind of energy. When first added to a substance, energy might be concentrated in one atom, but this one will soon bump into others and spread the energy. Eventually, every atom or molecule in the substance will move a bit faster. When the added energy is spread throughout a substance, it is then called heat energy, thermal energy, or, simply heat. All three terms mean the same thing. Heat is a form of energy, so it has the units of energy. In the SI system, this is Joules. Many other units to measure thermal energy are in common use. Calories and BTU's are common heat units.

http://hop.concord.org

Re-write words you underlined

3

_____ _____ _____

_____ _____ _____

Using a complete sentence, summarize or rephrase the passage

4

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

Question: What is a calorie and why is it important to know how many calories there are in certain foods?

Answer: A calorie is actually a unit of heat energy. That's right. We think of calories as just things that are in food and all foods have calories. But your body sees calories as energy and it's energy to produce heat. And heat energy is what really fuels our body just the same way that gasoline is what fuels your car's energy.

Now all foods have calories and different foods have different amounts of calories. Calories are provided by fat, carbohydrate, and protein.

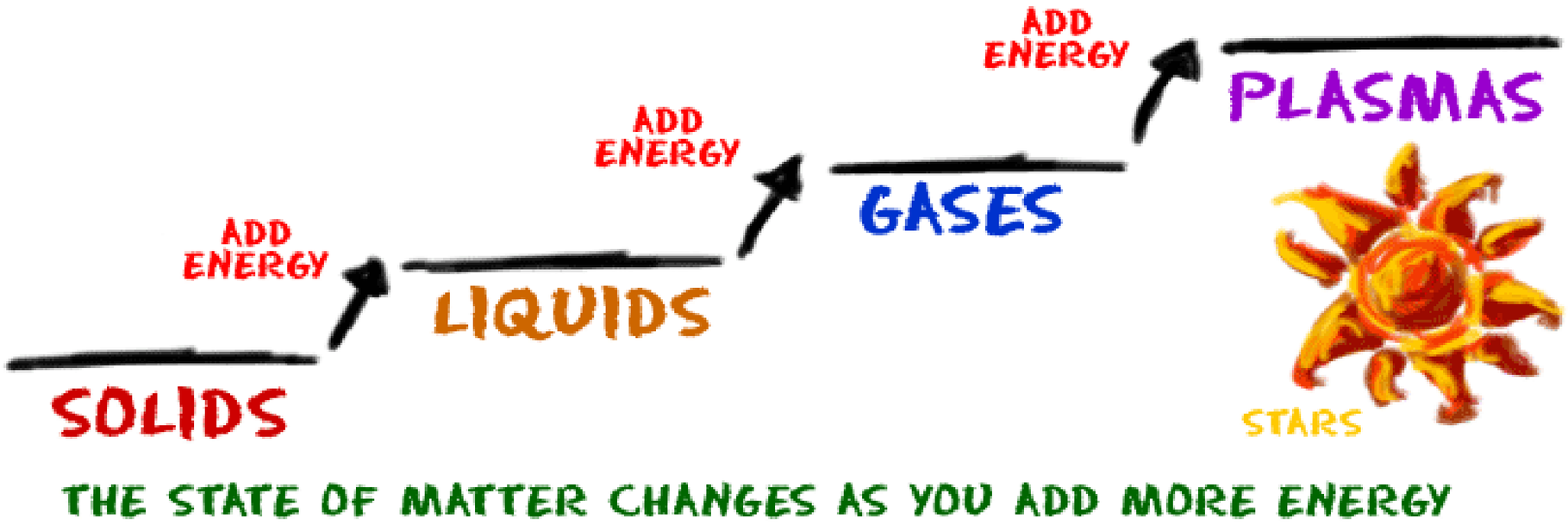
Fats have the highest concentration of calories. That's nine calories per gram of pure fat. Protein and carbohydrates each have four calories per gram of pure protein or pure carbohydrate. Alcohol, pure alcohol, has seven calories per gram. So understanding the role of calories in your diet can help you balance your calories in with your calories out.

http://abcnews.go.com

Draw Illustration

Copy and Label the Illustration in the Space Provided

Illustration



http://www.chem4kids.com

Draw (Copy) the Illustration Here

Interpret a Graph

Write the title of the graph _____

Circle the type of chart this represents

Bar Chart *Line Chart* *Pie Chart* *Other*

If applicable,

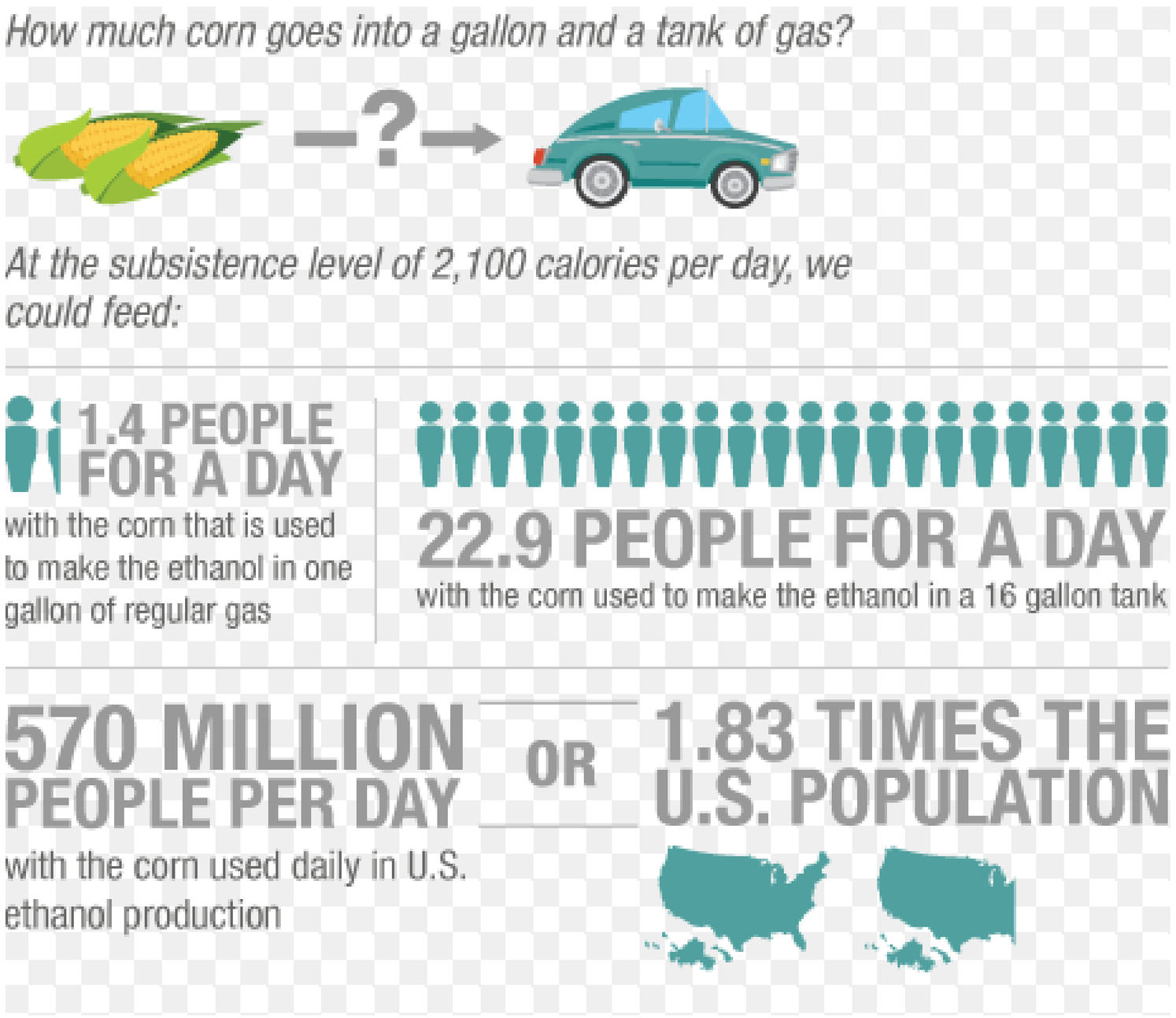
What does the X-axis represent _____

What does the Y-axis imply _____

Summarize what this graph represents or conveys

_____

http://www.npr.org



Show-Off Your Smarts!

Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

1.
2.
3.
4.
5.
6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.