



Wester Hailes Science

S2 Home Learning Materials

Week beginning 18 January 2020

Please complete the tasks on paper/computer/tablet. E-mail a picture to your teacher when you are finished for marking.

2P1,2P4 send to Daniel.Fulton@whec.edin.sch.uk

2P2,2P5 sent to Alison.Loudon@whec.edin.sch.uk

2P3 send to Lorraine.Mills@whec.edin.sch.uk

The pH Scale

1. Complete the following sentences using the words in the box:

salt	evaporating	alkalis	red	1	blue
	alkalis	water	Universal	14	
neutral	acids	8	green	pH	6

Acids are the chemical opposites of _____ . Acidity is measured on the _____ scale using _____ indicator. Strong acids are a _____ colour in Universal indicator. Strong alkalis are a _____ colour in Universal indicator. Acidity is measured on this scale from pH__ to pH__. Alkalinity is measured from pH__ to pH__.

Solutions which are neither acids nor alkalis are _____ solutions which turn a _____ colour when Universal indicator is added to it.

You can make neutral solutions by mixing _____ and _____ together. When the solution is heated in an _____ dish the _____ is removed leaving behind a solid called a _____ is left behind.

Energy in, energy out

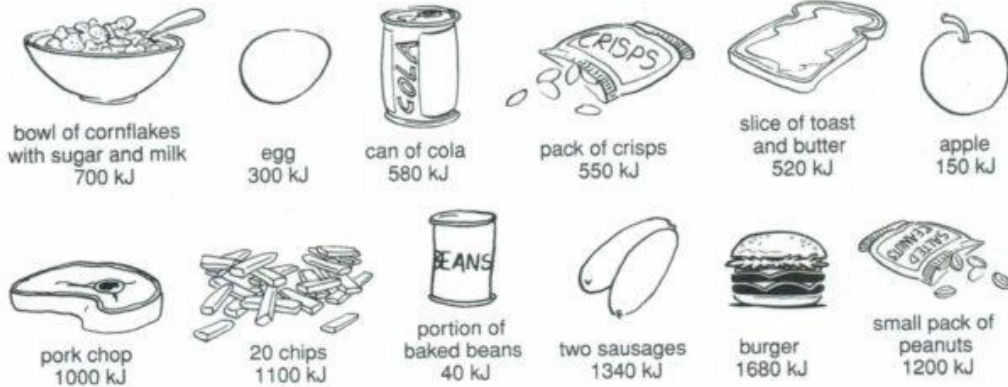
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Most of the energy you use comes from carbohydrates and fats.

Activity

These pictures tell you how much energy there is in some foods:



What to do:

Fill in the gaps. How much energy is there in:

Cornflakes, sugar, and milk = _____ kJ

Slice of toast with butter = _____ kJ

TOTAL = _____ kJ

Burger, 20 chips and beans = _____ kJ

Can of cola = _____ kJ

Bread and butter = _____ kJ

TOTAL = _____ kJ

Which would you eat as a snack if you wanted to lose weight: an apple, a packet of crisps, or a packet of peanuts? _____

Why? _____



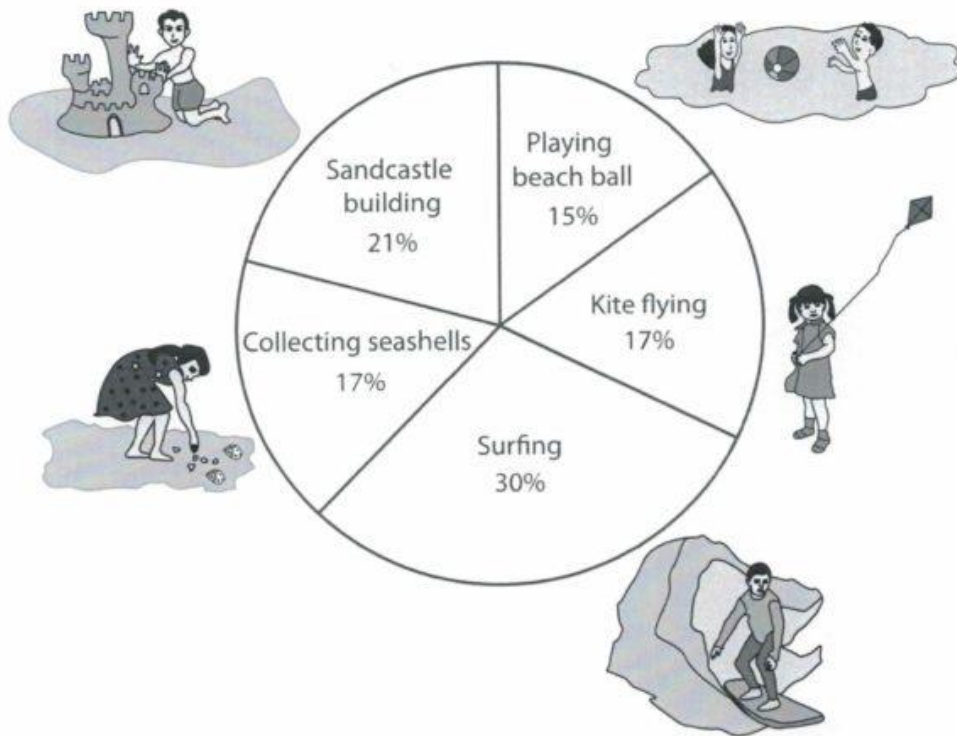
23-24

Name : _____

Score : _____

Pie Graph - Beach Activities

Mrs. Carolyn, teacher of Grade 5 recorded the favorite beach activities of her class. She made a pie graph based on the results. Study the graph and answer the questions.



- Which activity is least popular among the fifth graders? _____
- What percentage of students like surfing? _____
- Which two activities are equally popular? _____
- Which activity is the favorite of 21% students? _____
- What percentage of students like an activity other than sandcastle building? _____

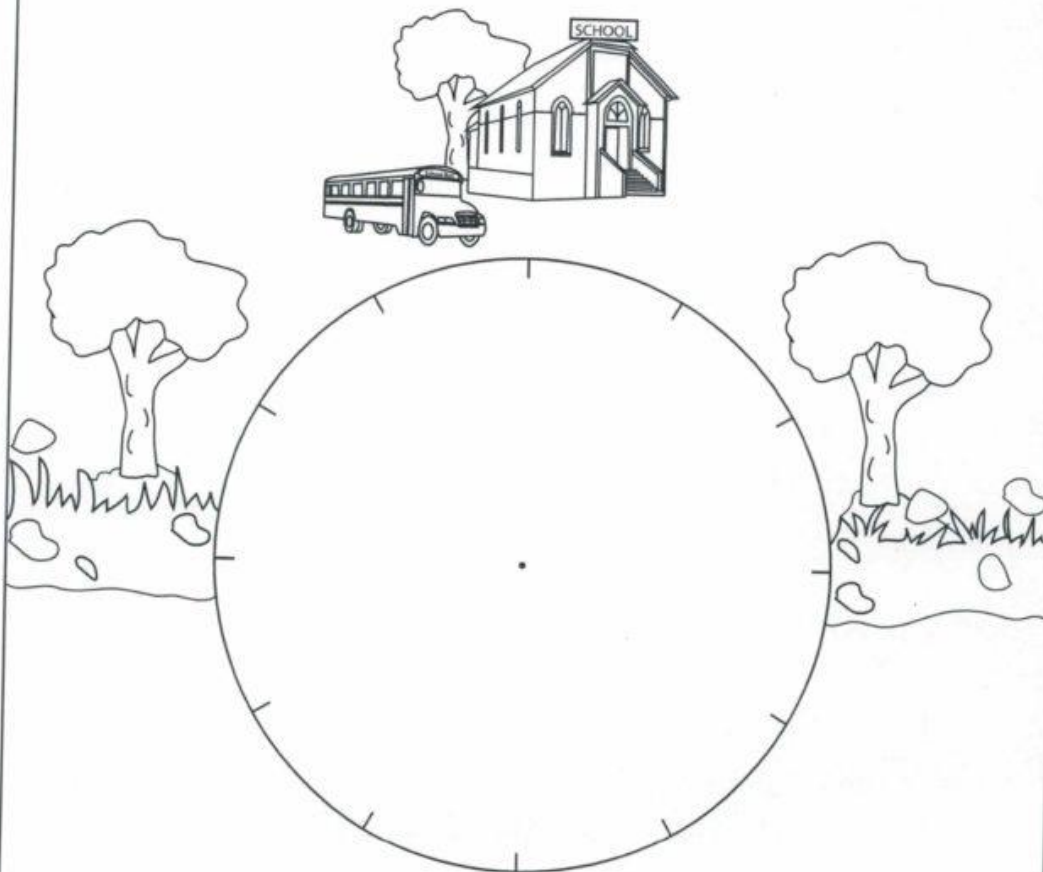
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Pie Graph - Trees around School

Patricia took a walk around her school. She counted and recorded the number of trees in each kind around the school. Display the information on the pie graph.

Pine	Oak	Red maple	Elm	Pecan
10	15	20	5	10

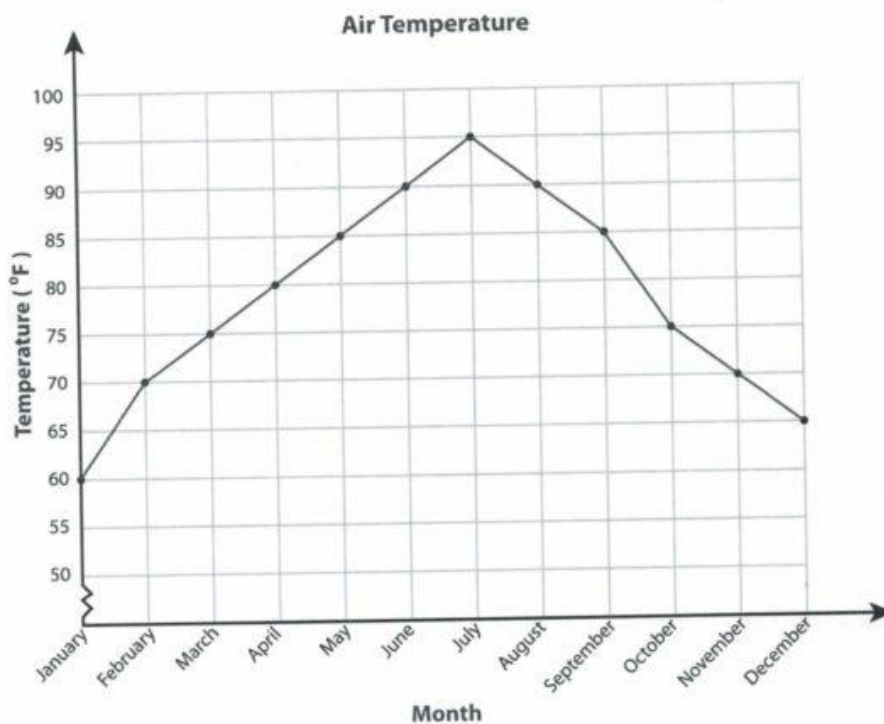


Name: _____

Score: _____

Line Graph - Air Temperature

David, a meteorologist recorded the variations in air temperature (in °F) throughout the year. He made a line graph displaying the recorded information. Read the graph and answer the questions.



- 1) What is the highest recorded temperature? _____
- 2) Where do you see a raise of 10°F in the graph? _____
- 3) Which is the coldest month? _____
- 4) Which month recorded 80°F? _____
- 5) What is the temperature recorded in the month of December? _____

Marie Curie

Marie Curie is best known for her work in radiation. She was born in Warsaw, Poland. Because both her parents were teachers, Marie learned how to read and write at a very young age. She was intelligent, had an outstanding memory, and worked very hard in school.

As Marie grew older, she was able to attend a university after graduating from high school, even though it was not something women did during those times. She attended a famous university in Paris, France called the Sorbonne where women were permitted to attend. After just three years at the school, she earned a degree in Physics.

In 1894, she married Pierre Curie. Marriage and motherhood did not stop Marie from her work and research as a scientist. She became interested in x-rays that had been recently discovered. She decided to do some experiments with the element uranium, which is given off by the rays.

Her husband, Pierre, joined Marie in her experiments. One day she was examining a material called pitchblende and had expected just a few rays to be given off. Instead, there were many extra rays and Marie realized there must have been an undiscovered element in pitchblende. She and her husband spent many hours in the lab doing investigations with the new element. They discovered two new elements, which were added to the periodic table.

Marie named one of the elements polonium after her home country, Poland, and the other she named it radium because it gave off so many strong rays. Marie and Pierre Curie came up with the new term 'radioactivity' to describe elements that emit strong rays.

In 1903, the Nobel Prize in Physics was awarded to both scientists for their work in radiation. Marie became the first woman in history to be awarded the Nobel Prize. In 1911, Marie won another Nobel Prize, this time in chemistry, for discovering the two elements, polonium and radium. This made her the first person ever to be awarded two Nobel Prizes.

During World War I, Marie came up with an idea to make x-ray machines more portable and easier to move from place to place. These portable machines helped over a million soldiers during the war.

Unfortunately, Marie Curie died in 1934 due to overexposure to radiation from the experiments and from the work she did with x-ray machines.

1) Where was Marie Curie born?

- A: Paris, France
- B: Sorbonne, France
- C: Warsaw, Poland
- D: United States

2) What degree did Marie Curie first earn in college?

- A: Physics
- B: Chemistry
- C: Biology
- D: Physiology

3) What did Marie Curie first become interested in which lead to her experiments?

- A: Research
- B: X-rays
- C: Injured soldiers
- D: Pitchblende

4) Which fields of science did Marie Curie win her Nobel Prizes?

- A: Chemistry
- B: Physics
- C: Biology
- D: Both A and B

5) Marie Curie discovered two new elements for the periodic table, radium and:

- A: Polonium
- B: Solonium
- C: Radon
- D: Curium

6) Which of the following was the cause of Marie Curie's death?

- A: Overexposure to polonium
- B: Overexposure to radiation
- C: Overexposure to cancer
- D: Overexposure to the sun

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Changing state

HOMEWORK SHEET
Reading for information

Imagine a beaker of pure ice with a thermometer in it. You heat the ice with a Bunsen burner. As the temperature increases, the ice molecules vibrate faster and faster. The kinetic energy of the molecules increases.

Eventually, the molecules have so much energy that they can break away from each other. They separate and move more freely. The solid melts, turning into a liquid.

While the melting is happening the temperature does not rise. The energy you are putting in is used to break the attractions between the molecules.

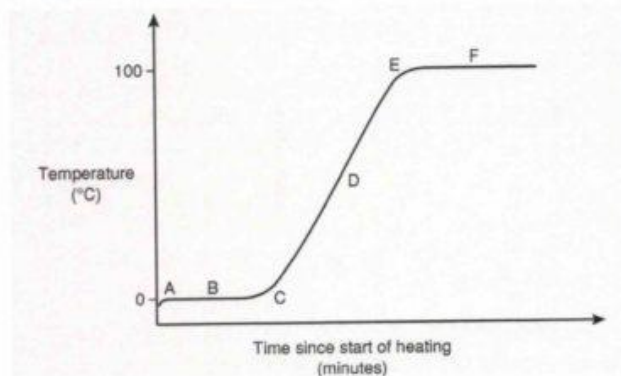
Once all the solid has become a liquid then the temperature begins to rise. It will continue to rise until the liquid begins to boil. The liquid water becomes a gas. While the water is boiling the temperature stays the same. The energy is used to break the attractions between the liquid molecules.

This energy is called latent heat.

A gas can lose energy and change state to become a liquid. This is called condensation.

A liquid can lose energy and change state to become a solid. This is called freezing.

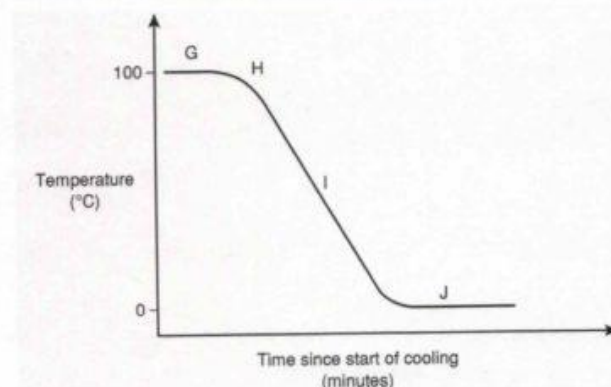
- 1 The graph below shows what happens when ice is heated until it boils. Use the information in the passage above to label the parts of the heating curve for water.



labels to use

ice melting
water boiling
water gets hotter
ice starts to melt
water starts to boil
all ice turned into water

- 2 Use the information in the passage above to label the parts of the cooling curve for water.



labels to use

water freezing
steam condensing
all steam turned to water
water cools down

Mark scheme

You will receive 1 mark for each correct label on each graph.

Maximum = 10 marks

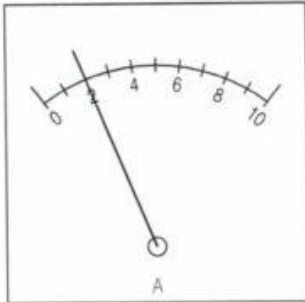


Reading scales

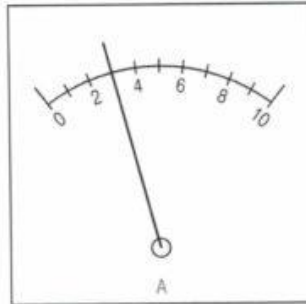
Skill Sheet

Name _____ Class _____

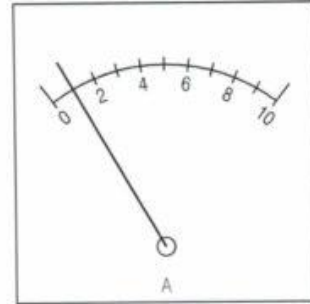
Write down the reading on each meter in the space provided.
Don't forget to include the units.



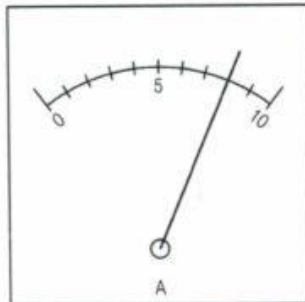
a) _____



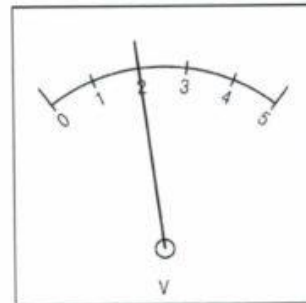
b) _____



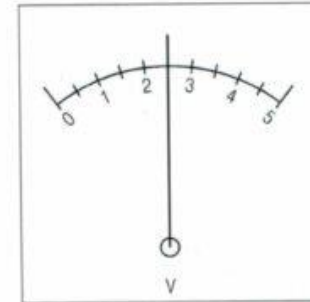
c) _____



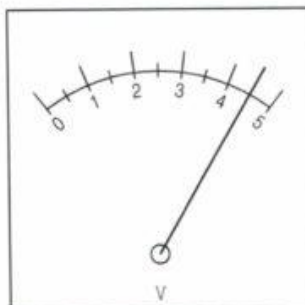
d) _____



e) _____



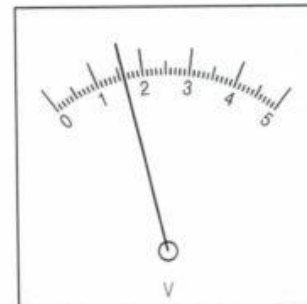
f) _____



g) _____



h) _____



i) _____