

Super Science Stupors 1

1. What are the 3 types of heat? Explain how each transfers heat.

- Convection – transfer of heat by currents in liquid or gas
- Conduction – transfer of heat by touch
- Radiation – transfer of heat through waves or rays

2. What are the 3 ingredients of photosynthesis?

- Sunlight
- Carbon Dioxide
- Water

Super Science Stupors 2

1. What water temperature is the densest? And how does that cause ocean currents

- Cold water is the densest and it sinks to the bottom of the lake or ocean.
- The space it leaves behind is filled by warmer water which is less dense and rises to the top.

2. What is one condition that is necessary for seed germination?

- Water is necessary for germination. (Breaking through of the seed coat)
- It softens the seed coat.

Super Science Stupors 3

1. How does convection cause wind?

- The hot air begins to rise because it is less dense.
- That space the hot air leaves behind is filled with cold air rushing in along earth's surface

2. Where does the majority of photosynthesis take place in a plant and why?

The majority of photosynthesis takes place in the leaves, because they have:

- A. Have chloroplasts
- B. Receive a lot of sunlight
- C. Have a large surface area.

Super Science Stupors 4

1. What are the 5 layers of the atmosphere? And in what layer does weather take place in?

- 2. Troposphere
- Stratosphere
- Mesosphere
- Thermosphere
- Exosphere

**Weather occurs in the troposphere

2. How are plant cells and animal cells different?

- Plant cells have a cell wall
- Plant cells have chloroplasts
- Plant cells are rectangular while animal cells are roundish.

Super Science Stupors 5

1. What layer of the atmosphere has the ozone and jet stream?

- Stratosphere has both

2. What are the seven levels of classification and which two are used to make a scientific name?

- Kingdom, Phylum, Class, Order, Family, Genus, Species.
- The Genus and Species make up the scientific name.

Super Science Stupors 6

1. What information do meteorologists use to predict weather?

- barometric pressure
- dew point,
- wind direction
- cloud type
- temperature.

2. How are plants and fungi different?

- Plants photosynthesize, while fungi eat dead stuff.

Super Science Stupors 7

1. As you move up into the atmosphere what changes can you expect?

- Temperature drops
- Pressure drops
- Composition of gases change, less oxygen the farther up you go

2. Mushrooms reproduce by releasing these....

- spores

Super Science Stupors 8

1. How is the coriolis effect created on earth?

- The Coriolis Effect is created by the Earth's rotation includes the deflection of wind and water in both the hemispheres but in opposite directions.

2. What are 5 ways pollen is transferred from flower to flower?

- Bees
- Bats
- Birds
- Wind
- Water

Super Science Stupors 9

1. What are the three phases of matter?

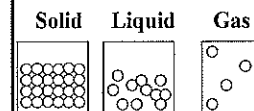
- Solid
- Liquid
- Gas

2. How are bacterial cells different from other cells?

- They don't have a nucleus.

Super Science Stupors 10

Draw the particle model of each phase of matter.



2. What is the difference between blue-green bacteria and bacteria?

- Blue-green bacteria can photosynthesize.

Super Science Stupors 11

1. What is the theory of plate tectonics?

The earth's lithosphere (crust and top part of the mantle) is divided into plates or sections that move. They move by convection currents located in the mantle in a layer called the *asthenosphere*.

2. What are 2 difference between plant and animal cells?

SKIP THIS!!!!!!!

Super Science Stupors 12

1. What evidence supports that the plates are moving?

- Earthquakes, volcanoes, seafloor spreading, and mountain building support the
- Theory of Plate Tectonics

2. What are the fundamental units of life?

- Cells

Super Science stupors 13

1. Who is Alfred Wegener?

A German scientist (1910) who used several types of evidence to support his idea that all the continents were once joined in a single land mass called Pangea 240 million years ago.

Evidence includes:

- The landscape in eastern South America matches up with the landscape in NW Africa indicating they fit together like a jigsaw puzzle
- Fossils from the same plants and animals were found on both continents indicating that they were once attached.
- Glacial scrappings were found on land masses in India that indicated that it was once attached to Antarctica.

2. Give an example of a multicellular and unicellular organism.

- Multicellular organisms could include animals, plants, and many fungi.
- Unicellular would include protists and bacteria.

Super Science stupors 14

1. What are some slow and rapid processes that are constantly changing the earth's surface?

- weathering
- erosion
- sediment deposition
- landslides
- volcanic eruptions
- earthquakes

2. How are cells replaced in the body?

- Cells repeatedly divide for growth and repair (Mitosis)

Super Science stupors 15

1. Observing the layers of sedimentary rock (sandstone, limestone, shale), how can we determine the age and history of the Earth?

- law of superposition states that each horizontal layer is younger than the ones below it;
- fossils...index fossils which is an organism that lived for a relatively short period of time (usually found only in one rock layer);
- cross-cutting which is a fault or rock layer is younger than any rock or fault through which it cuts;
- relative dating process of telling the age of age of a rock layer in relation to other layers of objects (show transparency)

2. Give an example of a predator/ prey relationship.

- Lion and zebra
- Spider and a fly
- Wolf and a deer.

Super Science stupors 16

1. Q: What is a mineral?

- (tiny particles found in all rocks...they are solid, non-living, formed in nature with a crystalline structure.

2. If an organism is multicellular, can move, eats other organism and has a nucleus in its cell, it belongs to what kingdom?

Animal

- Plant - no- doesn't eat other organism
- Fungi - no- Can't move
- Protist - no- unicellular
- Animal - Yes

Super Science stupors 17

1. Some of the characteristics that identify minerals are *streak, luster, density, cleavage, fracture, hardness and color*. Can we tell the "true" color of a mineral or rock from its exterior?

- No, because the color from a streak shows its powdered form inside the mineral...the outside color can change with weathering and can falsely provide the "true" color. (Ex: copper's true color is red, when weathered it can turn bluish-green...show pyrite on a streak plate...pyrite appears "gold" on the outside, when streaked it is gray or black)

2. What are some irreversible effects of human activity on ecosystems?

- Pollution (Mercury)
- Deforestation
- Over-hunting (Wolves)
- Bacterial resistance due to use of medication.

Super Science stupors 18

1. Which mineral characteristic identifies the way a mineral reflects light from its surface?

- luster (show example of dull and shiny minerals or rocks)

2. What is an ecosystem?

- All populations living together and the physical factors they live in.

Example: The savannah is an ecosystem that includes living things such as plants and animals. The Physical factors would include hot temperatures and rainy and dry season.

Super Science Stupors 19

1. Which mineral characteristic can be described by it leaving behind a scratchor streak on a surface? Hint: Mohs scale helps determine this.

- Hardness (show example of calc....rub it on a brick and it will streak which is a "1" on Mohs Hardness Scale...then scrape quartz on a brick...it will scratch it showing a "7" on Mohs Hardness Scale. The brick is about a 4.5 on the hardness scale.)

2. Give me an example of a parasite-host relationship. Make sure to list which one is the parasite.

<u>Parasite</u>	<u>Host</u>
Deer Ticks	Humans
Tapeworms	Dogs

Super Science Stupors 20

1. The way a mineral breaks apart can help to identify it. A mineral that splits easily along flat surfaces is called a _____

a) Cleavage

1. Most minerals do not split apart evenly. A _____ is the way a mineral looks when it breaks apart in an irregular way.

a) fracture

2. Name 3 different body systems?

- Digestion
- Respiration
- Reproduction
- Circulation
- Excretion
- Movement
- Muscular

Super Science Stupors 21

1. What is the difference between latitude and longitude?

- Latitude lines are the imaginary lines that run around the Earth, while longitude lines are the imaginary lines that run from the North Pole to the South Pole of the Earth.

2. Give an example of an animal that has an adaptation for living in its environment?

- The giraffe has a long neck which it allows it to eat the leaves on top of tall trees.

Super Science Stupors 22

1. List the planets in order starting with the closest to the sun.

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto

2. What is the difference between an endothermic and ectothermic animal?

- Endothermic animals are warm-blooded and keep their temperature constant.
- Ectothermic animals are cold-blooded. Their temperature fluctuates with the environment.

Super Science Stupors 23

1. How do the Sun, Moon and Earth line up for a solar eclipse? A lunar eclipse?

- Solar Eclipse = Sun, Moon, Earth
- Lunar Eclipse = Sun, Earth, Moon

2. Draw a dichotomous key for the kids in your class. (4 steps or levels)

- First level could be boys and girls.
- Second level could be brown eyes and not brown eyes.
- Third level could use be their height
- Fourth level could be 20/20 vision.

Super Science Stupors 24

1. Why does the moon change shape every night?

- Because the moon is only half lit by the sun and as it revolves around the earth the amount we can see of that lit half changes.

2. Name 4 different ecosystems found in Minnesota.

- Temperate forest
- Prairies
- Streams
- Lakes

Super Science Stupors 25

1. If the left side of the moon is lit, is it a waxing or waning moon?

• Waning

2. What are some things that can affect the amount of organisms that can live in an ecosystem?

- Resources- Food
- Temperature/Rainfall
- Disease
- Predators

Super Science Stupors 26

1. How long does one complete cycle of moon phases take (i.e. new moon to new moon)?

• About one month.

2. Where are genes located and what are they responsible for?

- Genes are located on chromosomes and are responsible for inherited traits.

Super Science Stupors 27.

1. When are day and night the same length all over the world? What is the scientific name for these dates?

- On or about March 21st and September 21st. (Equinoxes)

2. Who is known as the father of Genetics?

- Gregor Mendel has this title since he worked with pea plants and develop many of the basic concepts of genetics.
- (Dominant and recessive traits)

Super Science Stupors 28

1. What causes the difference between low and high tide?

- The gravitational pull of the sun and the moon on the water on Earth.

2. What are advantages and disadvantages of sexual and asexual reproduction?

- Sexual:
 - + more genetic diversity
 - Increased time and energy
- Asexual:
 - + no mate needed, faster
 - decreased genetic variation

Super Science Stupors 29

1. What are the two reasons for the seasons?

- The revolution of the Earth around the Sun and the fact that Earth is tilted on its axis.

2. Match the organisms with the correct terms.

Organisms:
Deer, Wolf, Clover

Terms:
Secondary consumer
Primary consumer
Producer

- Wolf - 2nd Consumer
- Deer - Primary Consumer
- Clover - Producer

Super Science Stupors 30

1. What is the difference between revolution and rotation?

- Revolution is the movement of one object around another, while rotation is the movement of an object around its center point.

2. Sex cells have how many chromosomes in relationship to a normal cell.

- Egg and sperm have half the original amount.