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1.1: Animals Unit Pretest

1. When a baby was five months old, she weighed 8 kg. After 7 years, the baby has grown into a girl, weighing 25 kg. Where did her increase in mass come from?

a) Select True or False for the following statements.

		Some of the girl's mass:
True	False	*is created by the girl.*
True	False	*comes from air.*
True	False	*comes from sunlight.*
True	False	*comes from water.*
True	False	*comes from food.*

b) Which ONE of the following do you think provides the MOST mass to the girl?

a. Mass the girl's body created

b. Air

c. Sunlight

d. Water

e. Food

c) Explain your choices. Where do you think the increase in the mass of the girl comes from?

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d) How does the girl's digestive system (stomach and intestines) help her gain mass as she grows?

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e) How does the girl's blood help her gain mass as she grows?

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2. Fat is mostly made of molecules such as stearic acid: $C_{18}H_{36}O_2$.

a) Decide and circle whether each of the following statements is true or false about what happens to the atoms in a man's fat when he exercises and loses weight.

True	False	Some of the atoms in the man's fat are incorporated into CARBON DIOXIDE in the air.
True	False	Some of the atoms in the man's fat are converted into ENERGY that he uses when he exercises.
True	False	Some of the atoms in the man's fat are BURNED UP AND DISAPPEAR.
True	False	Some of the atoms in the man's fat are converted into HEAT.
True	False	Some of the atoms in the man's fat are incorporated into WATER VAPOR in the air.

b) Explain the pattern in your answers. What happens to the atoms in the fat of a person who loses weight?

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3. A class was interested in how animals grow. The teacher started the lesson by telling his students that a cricket eats a lot of food each week but only gains a little bit of weight. The teacher asked, "What happened to the mass of the rest of the food?"

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a) Three students shared their ideas about what happened. Do you agree or disagree with what each student claims?

Agree	Disagree	Daryll: “The cricket's body turned the mass of the food into energy in order to grow.”
Agree	Disagree	Marisol: "The cricket breathed out most of the extra mass of the food as gases, like CO_2.”
Agree	Disagree	Bai: "The cricket’s body got rid of most of the extra mass of the food as solid waste (feces)."

b) Provide an explanation. Why did you agree or disagree with each student’s claim?

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The class generated some data. They measured the starting mass of 5 crickets and put each cricket in its own container. Then they gave each cricket 3 grams of food and made sure the crickets always had the same amount of water. After one week, the students measured the mass of the cricket, leftover food and cricket feces. Below are the data they generated.

Sample	Increase in cricket mass (g)	Decrease in mass of food (g)	Mass of solid waste (g)
1	+0.2	-2.0	+0.4
2	+0.2	-2.1	+0.5
3	+0.3	-2.3	+0.5
4	+0.1	-1.9	+0.4
5	+0.4	-2.3	+0.7
Average	**+0.3**	**-2.1**	**+0.5**

c) Which claim do you think is best supported by the data?

a. Daryll’s claim

b. Marisol’s claim

c. Bai’s claim

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d) Explain how the patterns in the data support the claim that you chose.

e) What additional evidence would you collect to help show that the claim you chose is the best claim?

4. How do you think food contributes to people's body heat?

5. When a girl breathes, she breathes in air that has more oxygen, and she breathes out air that has more carbon dioxide. Where in her body is the carbon dioxide produced?

a) Circle True or False.

True	False	Some of the carbon dioxide is produced in the girl's LUNGS.
True	False	Some of the carbon dioxide is produced in the girl's HANDS.
True	False	Some of the carbon dioxide is produced in the girl's BRAIN.

b) Explain how the carbon dioxide is produced in the girl's lungs, hands, and/or brain.

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6. When a mouse is alive it has energy stored in its living parts (muscles, fat, blood, etc.). When the mouse dies all the parts are still there, but no longer alive.

a) Does a dead mouse still contain energy?

a. Yes

b. No

b) Explain your answer. If you answered YES, what kind(s) of energy are in the mouse after it dies and where is energy stored? If you answered NO, why does a dead mouse not have energy?

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