

SCIENCE Exit Level

2010 Released Items

- 1 Which of the following questions is least helpful when forming a testable hypothesis about the origin of a meteorite?
 - **A** Can some geologic processes account for the meteorite's microscopic patterns?
 - **B** Do people believe meteorites are partly responsible for spreading microscopic life?
 - **C** Is the chemical composition of the meteorite similar to that of rocks on Earth?
 - **D** Does the angle of entry into Earth's atmosphere provide information about the meteorite's source?

Common Name Group	Ring-Tailed Lemur	Whale Shark	Humpback Whale	Black Spider Monkey
Kingdom	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Chordata	Chordata
Class	Mammalia	Chondrichthyes	Mammalia	Mammalia
Order	Primates	Orectolobiformes	Cetacea	Primates
Family	Lemuridae	Rhincodontidae	Balaenopteridae	Cebidae
Genus	Lemur	Rhincodon	Megaptera	Ateles
Species	catta	typus	novaeangliae	paniscus

Classification of Four Organisms

Objective 1

2 According to the table, which of these organisms are most closely related to each other?

- A Ring-tailed lemur and whale shark
- **B** Whale shark and humpback whale
- C Humpback whale and black spider monkey
- **D** Black spider monkey and ring-tailed lemur



- **3** Data for the atomic radii and ionization energies of elements in Group 1 are shown above. Which statement regarding these elements is supported by this information?
 - A Electrons closer to the nucleus require more energy to remove.
 - **B** Elements with greater atomic mass require more ionization energy.
 - C Elements with small atomic radii easily gain electrons.
 - **D** Electrons are lost from the inner energy levels first.

- 1 Water moves freely across a cell membrane by
 - A osmosis
 - **B** exocytosis
 - ${\bf C} \quad {\rm meiosis} \quad$
 - ${\bf D} \quad \text{endocytosis} \quad$

Objective 2



- **2** According to the information above, what is the complementary strand of this section of a DNA molecule?
 - A GTC
 - **B** ATG
 - C CAG
 - D CGT



- **3** The diagram above shows one of the processes that occurs in vertebrates. According to this information, which two body systems work together during this process?
 - A Skeletal and respiratory systems
 - **B** Circulatory and excretory systems
 - C Respiratory and circulatory systems
 - **D** Skeletal and excretory systems

Diatoms are single-celled photosynthetic organisms that float near the ocean surface. Many species develop glasslike cell walls that can be preserved as fossils. The diatoms are identified by the height of the hyaline (glass-like) area of the cell wall.



- 1 The graph above illustrates the fossil record for the diatom genus *Rhizosolenia* between 3.3 million and 1.6 million years ago. Which statement is best supported by these data?
 - A $\,$ A biologically fit diatom had a diameter of 3.5 $\mu m.$
 - ${\bf B} \quad {\rm Silicon \ was \ a \ common \ element \ in \ ancient \ oceans.}$
 - ${\bf C} \quad {\rm Environmental \ factors \ determined \ the \ height \ of \ the \ hyaline \ area.}$
 - **D** Speciation occurred about 3 million years ago.

- **2** Which of the following must be available for aerobic respiration to take place?
 - A Hydrogen sulfide
 - **B** Oxygen
 - C Carbon dioxide
 - **D** Nitrogen

- **3** The relationship between a desert bat and a giant saguaro cactus is considered mutualistic because the cactus provides food for the bat and because
 - A the cactus needles protect the bat from predators
 - **B** the bat transfers pollen between cactus flowers
 - $C \quad \mbox{the cactus's flowers attract bugs to the bat}$
 - **D** the bat prevents moisture from reaching the plant

- 1 Which of the following elements will most easily lose its electrons to fluorine to form a salt?
 - A Na
 - B Al
 - C S
 - D Ar

- $C + Fe_2O_3 \rightarrow Fe + CO$
- **3** What is the coefficient for CO when the equation above is balanced?
 - **A** 1
 - **B** 2
 - **C** 3
 - **D** 4

- **2** Which of the following is the best evidence that digestion involves chemical change?
 - **A** Time is required to accomplish results.
 - **B** The products' mass equals the reactants' mass.
 - **C** Different compounds are involved.
 - **D** New substances are produced.

Acceleration of a Garbage Truck



- 1 What was the garbage truck's acceleration between 1 and 5 seconds?
 - **A** 1.0 m/s 2
 - ${f B}$ 1.2 m/s²
 - C $\,$ 4.0 m/s 2
 - ${f D}$ 6.0 m/s²

- **2** Which of the following is directly proportional to an object's mass?
 - **A** The object's speed
 - **B** The temperature of the object in the solid phase
 - C The amount of time the object moves when pushed
 - **D** The object's inertia

- **3** Which is the best example of heat transfer by conduction?
 - **A** A pan's handle becoming hot when the pan is heated
 - **B** A space heater warming the air in a room
 - C A lamp heating a lizard in a terrarium
 - **D** A fan forcing air through a computer to cool the inside

ltem Number	Student Expectation	Correct Answer
OBJECTIVE 1		
1	B.2 (A)	В
2	B.2 (C)	D
3	B.2 (D)	А
OBJECTIVE 2		
1	B.4 (B)	А
2	B.6 (A)	С
3	B.10 (B)	С
OBJECTIVE 3		
1	B.7 (B)	D
2	B.9 (D)	В
3	B.12 (B)	В
OBJECTIVE 4		
1	I.7 (D)	А
2	I.8 (A)	D
3	I.8 (C)	С
OBJECTIVE 5		
1	I.4 (A)	А
2	I.4 (B)	D
3	I.6 (B)	А