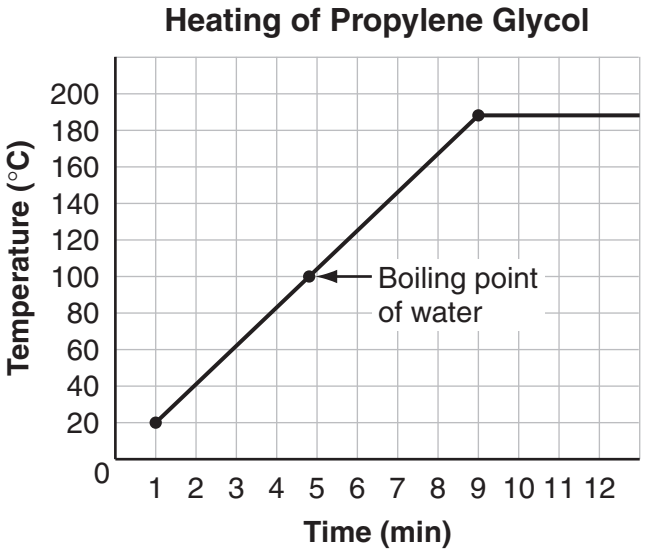
New England Common Assessment Program

Released Items 2010

Grade 8 Science

Science

1 A teacher heats 250 mL of propylene glycol in a beaker. The graph below shows the temperature data collected.



Which comparison can **best** be made based on this experiment?

A. Propylene glycol has a lower boiling point than water.

B. Propylene glycol has a lower melting point than water.

C. Propylene glycol has a higher boiling point than water.

D. Propylene glycol has a higher melting point than water.

2 The table below shows a chemical equation.

Mass of Reactants	Mass of Products
Methane + Oxygen	Carbon Dioxide + Water
50.0 g + 200.0 g →	137.5 g + ?

What is the mass of the water produced?

A. 62.5 g

B. 112.5 g

C. 250.0 g

D. 387.5 g

3 A student is using a metal wire to toast marshmallows in a campfire. Which statement **best** explains why the wire feels hot after several minutes?

A. Heat is transferred from the fire through the wire by conduction.

B. Heat is transferred from the fire through the wire by radiation.

C. Hot air from the fire is circulated by conduction.

D. Hot air from the fire is circulated by radiation.

4 Over millions of years, coal formed from decayed plants that grew in hot, moist climates. Today, coal is found in northern regions such as Europe and North America.

Why is coal now found where the climate is cool?

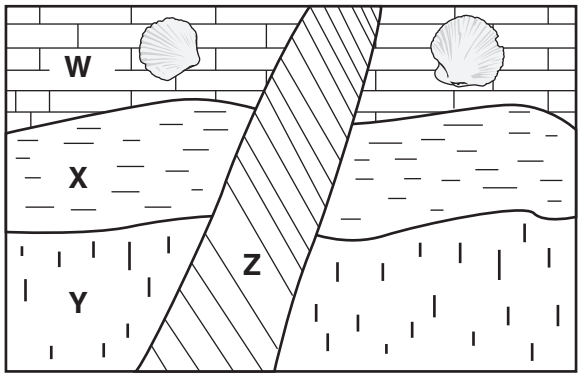
A. Europe and North America were once located near the equator.

B. The plants that form coal adapted to cool climates over time.

C. Northern regions of Earth had a warm, desert climate many years ago.

D. The plants that form coal grow during the summer months when the weather is warm.

5 The diagram below shows a cross section of different rock layers.



Which conclusion correctly describes the **youngest** rock layer in the diagram?

A. Layer W is the youngest because it is the top layer of sedimentary rock and the only layer that contains fossils.

B. Layer X is the youngest because it is the middle layer of sedimentary rock.

C. Layer Y is the youngest because it is the bottom layer of sedimentary rock.

D. Layer Z is the youngest because it was once molten rock that moved through all three layers of sedimentary rock.

Please use the Solar System Data on the reference sheet to answer the question.

6 The table below lists additional data about two planets.

Additional Planetary Data

Planet	Average Temperature (°C)	Mass (10^{24} kg)	Carbon Dioxide in Atmosphere (%)
Mercury	167	0.3	3.5
Venus	457	4.9	96.5

Based on the information on the reference sheet and in the table, which data explains the difference between the average temperatures of Mercury and Venus?

A. mass

B. orbital period

C. mean distance to the Sun

D. composition of the atmosphere

Use the Plate Movements diagram on the reference sheet to answer part (a).

7 The table below lists data scientists gathered from the continents of South America and Africa.

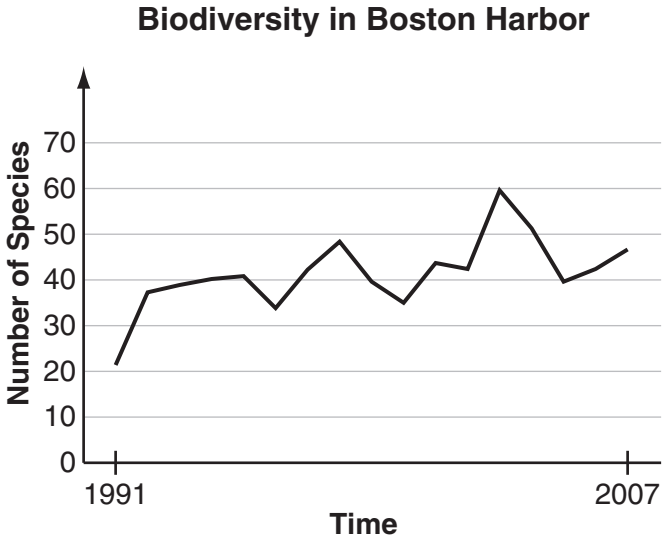
Geologic Data from South America and Africa

Data Sets	South America	Africa
Ages of Rocks	550–2000-million-year-old rocks along eastern coast	550–2000-million-year-old rocks along western coast
Types of Animal Fossils	*Mesosaurus* (reptile)	*Mesosaurus* (reptile)
Types of Plant Fossils	*Glossopteris* (fern)	*Glossopteris* (fern)
Sedimentary Structures	• Ancient glacial deposits • Glacial scour marks trending from west to northwest	• Ancient glacial deposits • Glacial scour marks trending from west to northwest

a. Describe the role of the Mid-Atlantic Ridge in the separation of the continents of South America and Africa.

b. Choose **two** sets of data from the table and explain how these data sets support the theory that South America and Africa were once joined together.

8 Sewage sludge was repeatedly dumped into Boston Harbor until 1991, which polluted the harbor. Scientists recorded the number of species in Boston Harbor from 1991 until 2007. The graph below shows the results.



Which prediction do the data in the graph **most** support?

A. The ecosystem will have fewer habitats because the number of species is increasing.

B. The ecosystem will become more stable because the number of species is increasing.

C. The ecosystem will become unstable because the number of species is decreasing.

D. The ecosystem will have fewer types of species because the number of species is decreasing.

9 The picture below shows an aquatic plant called a water hyacinth.

Water hyacinth plants are classified as an invasive species in most states. The plants grow on top of water and form thick mats, quickly covering the surface of ponds or rivers.

Which statement **best** predicts what will happen when water hyacinth plants enter an ecosystem?

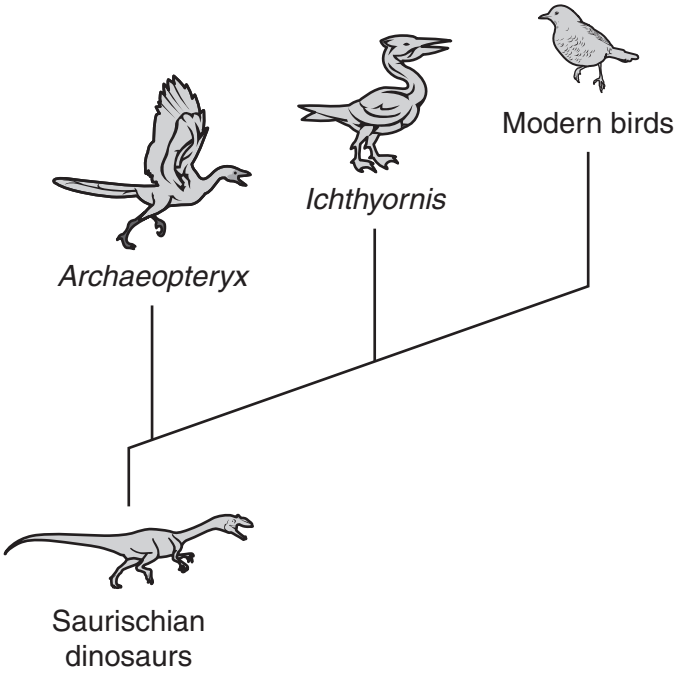
A. Other aquatic plant species will have less available sunlight.

B. All herbivores in the ecosystem will start to eat water hyacinth plants.

C. Other aquatic plant species will have more available sunlight.

D. The water hyacinth plants will have no effect on the ecosystem.

10 The diagram below shows one example of an evolutionary line for birds.



Which conclusion does the information in the diagram **best** support?

A. *Ichthyornis* is still living today.

B. All of these organisms evolved at the same time.

C. Most bird fossils found today are Saurischian dinosaurs.

D. *Archaeopteryx* and modern birds have a common ancestor.