Question	1

Students will explore the sequencing of events preserved in the geologic record. They will use models to observe time phenomena and analyze and interpret rock strata and the fossil record to provide relative dates. investigation (Relatively Speaking) page14-unit 1 PDFQ 28 Investigation (Relatively Speaking) page14-unit 1PDFQ 29

Students will create a scale model of the geologic time scale and construct scientific explanations to enhance their understanding of how the geologic time scale is interpreted from rock strata and used to organize Earth's history. investigation- Gaps in the Rock Record (2- unconformities) Page 33-unit 1PDFQ31

Relatively Speaking

Analyze the image below.

**28-Do you think all of the rock layers in the picture formed at the same time? Why or why not?**

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29-If you think the rocks formed at different times, which layers are the oldest and which are the youngest? Explain…………………………………………………………………………………………...…

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30-What are the principle of relative age dating?

Principles of Relative-Age Dating
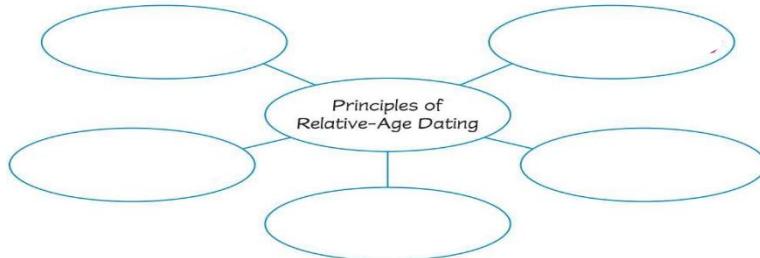
31-Identify the unconformities in the image below:

Younger sedimentary rock

Older sedimentary rock

Younger sedimentary rock

Older sedimentary rock

Younger sedimentary rock

Older igneous rock
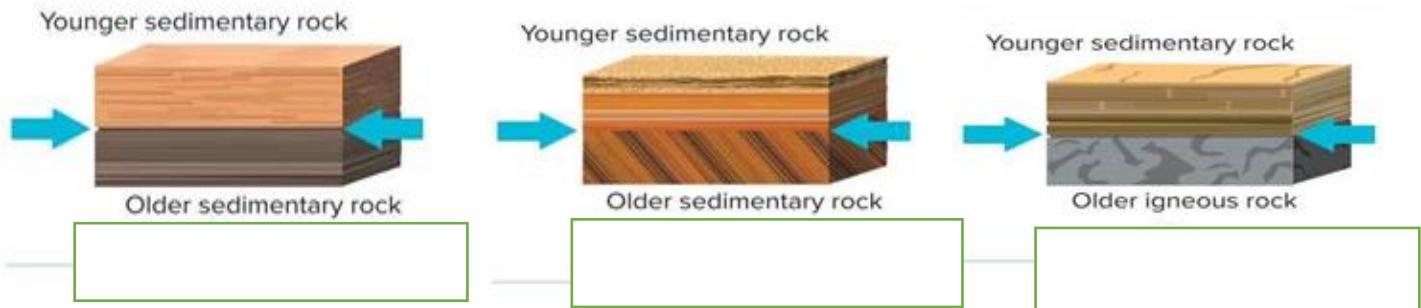
Question	2

Students will explore the molecular nature of genetic material and how mutations occur. Types of Mutations page 71-unit 1 PDFQ32
Students will explore how similar variations in a population due to inherited mutations can cause an adaptation over generations. Collect Evidence, page 96-Unit 1, page 97-Unit 1, page 99- Unit 1 PDFQ 33, 34, 35
Students will gather and synthesize information about selective breeding and other forms of technology that have changed the way humans influence the inheritance of desired traits in organisms. Lesson 3 Launch (Corn Connection), Three Dimensional Thinking, Writing Connection Page 101-Unit 1, page108 Unit 1, page 114-Unit 1 PDFQ 36, 37, 38

32-Study the original DNA sequence, then name the type of mutations present in A, B, and C.
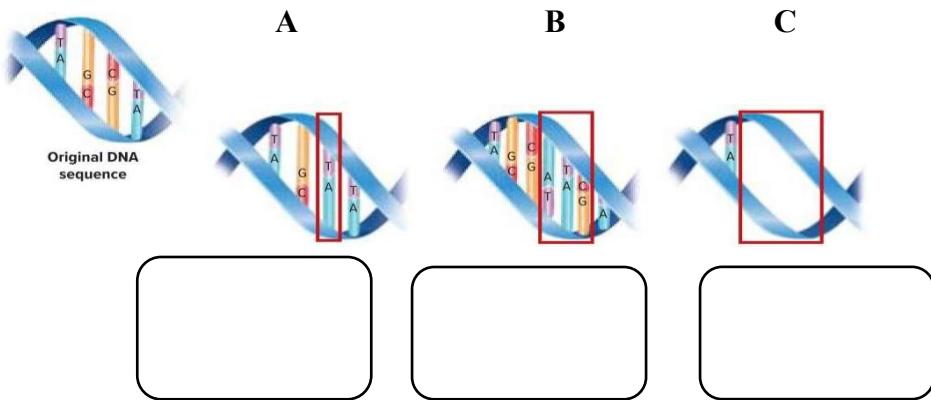
33- How do adaptations affect organisms, such as orchid plants?

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34-Which structural genetic change in the finches can be identified as the one most influenced by feeding habits, as proposed by Charles Darwin?

A-ability to fly from island to island to find the food they prefer

B-beak size and shape to take advantage of the food they had

C-claw shapes for perching on limbs while catching insects in their beaks

D- cooperative behavior so they could share limited seeds and nectar

35- Construct an explanation for how blending in enables an organism to survive in its environment……………………………………………………………………………………………

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Corn Connection

Three friends were working on their history homework together when they noticed that the corn in an image in their textbook looked a lot different than what corn looks like today. Here are their thoughts:

Deidra: I think the corn from the history book is a different species than the corn we eat today.

Jayden: I think that the corn is the same species, but it has changed over time.

Natalia: It think the corn looks different because we grow it differently today. If we grew it the same way, it would look the same.

Circle the student you agree with most. Explain your choice.

36- Circle the student you agree with most. Explain your choice.

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37-Can traits of organisms always be predicted with selective breeding? Explain how multiple causes can influence the traits of an organism.

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38- Write a paragraph explain how natural selection and artificial selection are related. Include a main idea, supporting details, and a concluding sentence.

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Question	3

Students will explore fossil evidence of evolution. Lesson 1 Launch(Endless Fossi-bilities), Encounter the Phenomenon page129-Unit 1, page131 Unit 1 PDFQ 39, 40
They will recognize how fossils form, what fossils can tell us about time, and how fossils show change over time. Three Dimensional Thinking page145-Unit 1 PDFQ 41
They will analyze and interpret data for patterns in the fossil record to enhance their understanding of these concepts. Three Dimensional Thinking page145-Unit 1 PDFQ42
Students will analyze and interpret data on anatomical similarities in living organisms and fossils to determine patterns that can lead them to infer lines of evolutionary descent. Investigation (Evolving Your Knowledge) page157-Unit 1 PDFQ 43, 44, 45

Endless Fossi-bilities

Four friends were comparing their ideas about fossils. This is what they said:

Emma: I think fossils are pieces of dead animals and plants, and tell us little about the animal or plant.

Aidan: I think fossils only come from bones of extinct animals that lived millions of years ago.

Ethan: I think fossils are the evidence of the existence of organisms seen in the remains of bones, shells, or even impressions of rock layers.

Madison: Fossils are the remains of plants and animals that have recently died. Their remains cannot be preserved for very long.

With whom do you agree most? Explain why you agree with that person.

**39-With whom do you agree most? Explain why you agree with that person.**

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40-How do fossils, such as Tiktaalik, provide evidence of evolution?

Tiktaalik roseae was a transitional species that lived 375 million years ago.

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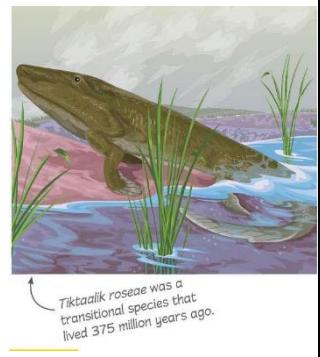
41-What method can scientists use to analyze and interpret when the fossils in the bottom of the figure appeared on Earth?


  a- relative age dating

  b- trace fossils

  c- mineralization

  d- carbonization
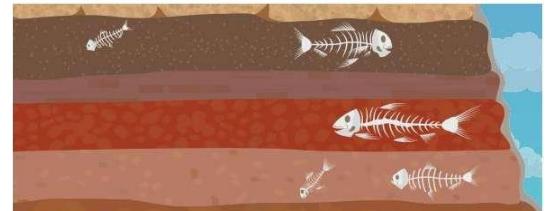
42- What pattern can scientists use to interpret the information about the fossils shown in the rock layers?

  a- Rock layers all contain different sets of fossils.

  b- Older fossils are located closet to Earth's surface.

  c- Fossils are younger the closer they are to the surface.

  d- Each fossils is younger than the rock layer in which it is found.

proteins, such as cytochrome c, are made from combinations of 20 amino acids. The graph shows the number of amino acid differences in cytochrome c between humans and other organisms. Use the graph to answer the questions.

Differences in Cytochrome c Between Various Organisms and Humans
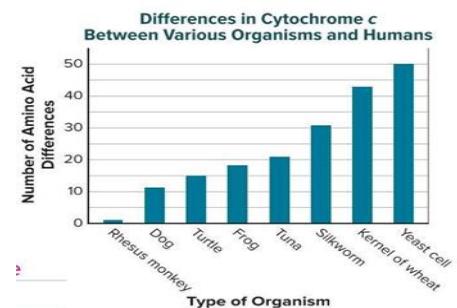
43-Which organisms do you think might be more closely related to each other: a dog and a turtle or a dog and a silkworm? Explain your answer.

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44-Which organism has the least differences in the number of amino acids in cytochrome c compared to humans? Which organism has the greatest difference?

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45-Notice the number of differences of amino acids in cytochrome c between each organism and humans. How might these differences explain the relatedness of each organism to humans?

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Question	4

Students will explore how to describe the position and motion of an object. Encounter the Phenomenon, The Reference Direction, Motion Using Reference Points page 7-Unit 2, page 12-Unit 2, page18- Unit2 PDFQ 46, 47, 48

Students will analyze data including graphs to help construct and present arguments about the changes over time in the motions of objects. Math Connection, Three Dimensional Thinking page 23-Unit 2, page 29-Unit 2 PDFQ 49, 50

Students will explore how the force exerted by one object on a second object is equal in strength and opposite in direction to the force that the second object exerts on the first. Math Connection page 44-Unit 2 PDFQ 51

**46- How can you describe the position and motion of the train outside the window?**…………………………………..…………
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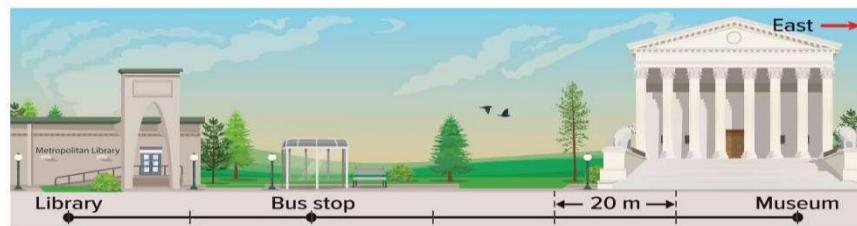
47- The reference point in the image is East. Abdulrahman move from the bus stop to the museum. Has he moved positive or negative to the reference point?

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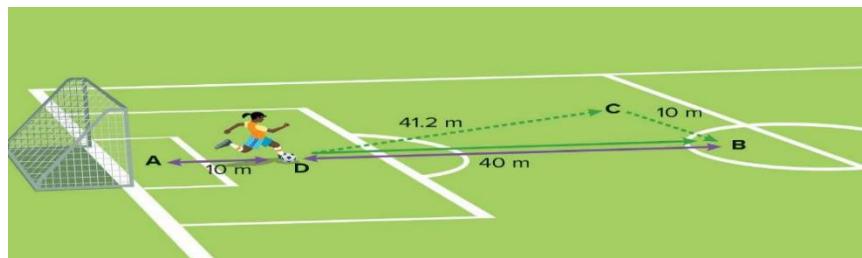
48- a. What is the total distance covered by the player from points A to D to C to B?

………………………………………………………………………………………………..

48- b. What is the magnitude of the displacement of the player from A to B?

………………………………………………………………………………………………….

49-1-A truck driver makes a trip that covers 2,380 km in 28 hours. What is the driver's average speed in km/h?………………………………………………………………………………..

49- 2- What is the average speed of a soccer ball that travels 34m in 2.0s?

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50-Analyze the data on the plot below. Determine the speed of the hawkbill sea turtle during each interval listed below.
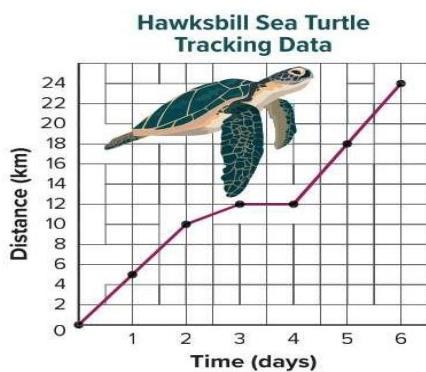
Day 0 to day 2 :………………………………………………….

Day 2 to day 3:………………………………………………..

Day 3 to day 4:………………………………………………..

Day 4 to day 6:………………………………………………

51-A force of 100N is applied to the wrapped present, giving it an acceleration of 2m/s^2. What is the mass of the object?...

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51-What is the acceleration when a force of 2.0N is applied to a ball that has a mass of 0.60kg?...

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