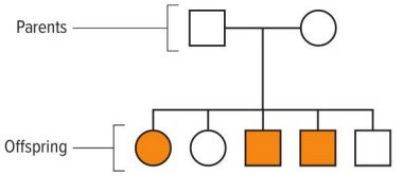
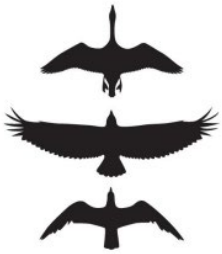
Grade 6 General Science EOT1 Practice Questions

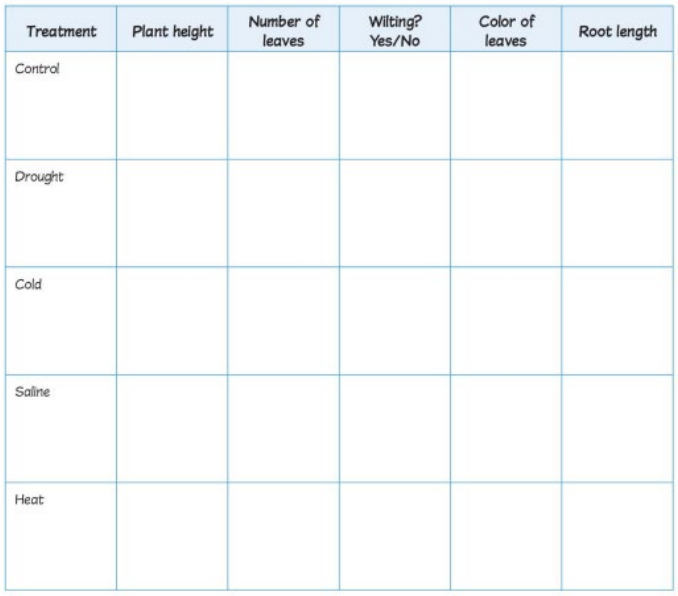
No.	Example	Page
	MCQ	
1	**ENCOUNTER** THE PHENOMENON | Why do some offspring look like their parents, while others do not?	Pg.7
2	**Three-Dimensional Thinking** Susana visits with four generations of her family. Her great-grandmother shows her an old family photo of Susana's great-aunts and great-uncles when they were children. Susana is surprised to see that one of the great-uncles looks almost exactly like her younger brother does now. They have the same distinctive hairline and eye shape. Her great-grandmother tells her that it is the result of heredity. 2. Which is the best explanation that shows the sequence of inheritance that led to Susana having a brother who has the same hairline and eye shape as her great-uncle? A: Traits appeared in great-grandmother's generation. → Traits passed to grandmother's generation. → Traits skipped mother's generation. → Traits reappeared in brother. B: Traits appeared in great-grandmother's generation. → Traits skipped grandmother's generation. → Traits skipped mother's generation. → Traits reappeared in brother. C: Traits appeared in great-grandmother's generation. → Traits passed to grandmother's generation. → Traits passed to mother's generation. → Traits reappeared in brother. D: Traits appeared in great-grandmother's generation. → Traits not passed to grandmother's generation. → Traits not passed to mother's generation. → Random mutation reappears in brother.	Pg.25 Q2
3	**6.** Determine the possible genotype(s) for each phenotype. Record your responses in the table. Explain your reasoning.	Pg.17 Q6
4	**COLLECT EVIDENCE** What factors control traits, such as those of the kittens at the beginning of the lesson? Record your evidence (B) in the chart at the beginning of the lesson.	Pg.17

5	 Attached lobe  **Recessive phenotype** Female with attached lobes Male with attached lobes **Dominant phenotype** Female with unattached lobes Male with unattached lobes  Unattached lobe  **THREE-DIMENSIONAL THINKING** If the genotype of the offspring with attached lobes is *uu*, what is the genotype of the parents? **Explain** your answer.	Pg.22
6	1. **Model** a pedigree chart that reflects the following information: Two parents have five children. Both of the parents have curly hair. Two boys and one girl have curly hair; the other two, one boy and one girl, have straight hair. Before you draw your chart, choose a color for straight and curly hair, and indicate it in the table. After you draw your chart, determine which trait is dominant and label the proper columns in the table. ____ phenotype / ____ phenotype Female with curly hair / Female with straight hair Male with curly hair / Male with straight hair	Pg. 24 Q1

7	**THREE-DIMENSIONAL THINKING** Now that you have learned about dominant and recessive traits, take a look back at the table on the previous page. **Construct an explanation** for which seed color is the dominant trait.	Pg.14
8	**3.** When Mendel crossed a true-breeding plant with purple flowers and a true-breeding plant with white flowers, ALL offspring had purple flowers. The best explanation for this data is that the white flowers are **A** dominant. **B** heterozygous. **C** recessive. **D** neutral.	Pg.25 Q3
9	**COLLECT EVIDENCE** How can two organisms produce offspring that are not identical to themselves, unlike the sea star at the beginning of the lesson? Record your evidence (B) in the chart at the beginning of the lesson.	Pg.35
10	**Three-Dimensional Thinking** **2.** A tree produces seeds in pods when wind-borne pollen from another tree of the same species reaches the flowers. Each seed contains genetic information so the seed can grow into an adult tree. Which do you predict would be the effect of this process? **A** The tree produces a large number of genetically diverse offspring. **B** The tree produces a large number of genetically identical offspring. **C** The tree produces a small number of offspring that are identical to the female parent. **D** The tree produces a small number of offspring that are identical to the male parent.	Pg.39 Q2

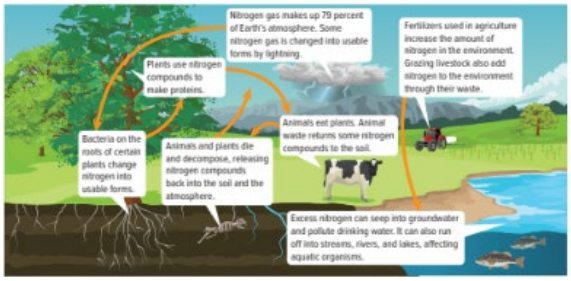
11	**ENCOUNTER THE PHENOMENON** | How does this sea star reproduce?	Pg.29
12	INVESTIGATION **Plant Progeny** Observe two plants—a seed potato and a coleus stem—in glasses of water. Look at photos of the plants when they were first placed in water. Draw a detailed diagram of each of the glasses in your Science Notebook. Observe the plants a week after placement in the water and write down your observations in your Science Notebook. 1. How did the potato and the coleus plant change after one week? 2. How do you think that this relates to the sea stars you heard about in the introduction to this lesson?	Pg.32 Q1-2
13	INVESTIGATION **Staying Safe** When goslings, or baby geese, see a bird in the air that has a different wingspan or shape than the parent goose, they duck down. 1. Look at the images of the three birds in flight. Describe the differences between each silhouette.  2. Choose at least two characteristics that are different for each bird. 3. How could recognizing differences help a gosling survive?	Pg. 52 Q1-3
14	**COLLECT EVIDENCE** How are young animals, such as bird of paradise chicks, protected? Record your evidence (B) in the chart at the beginning of the lesson.	Pg.58

15	INVESTIGATION **Animal Attraction** Animals attract mates in a variety of ways. Depending on the type of animal, these mating rituals can look very different. In what ways do animals "show off" to attract mates? GO ONLINE Watch the *Finding the Right One* videos. Record your observations about how the animals in the videos try to attract mates. What behaviors do you observe?	Pg.46
16	**Three-Dimensional Thinking** In order to attract a mate, male peacocks fan out their colorful feathers and dance. Females tend to choose males that have larger displays of feathers and feathers with more eyespots. The peahen then builds her nest by scraping a hole in the ground in a hidden area. Once the chicks hatch, the peahen stays close to them, teaching them what foods to eat and defending them from predators. **2.** Which of the following is a courtship behavior that increases the probability of successful reproduction for the peacock? **A** fanning feathers **B** nest building **C** protecting from predators **D** all of the above	Pg.63 Q2
17	ENVIRONMENTAL Connection Bees play an important role in pollination. As they move from flower to flower collecting nectar for foc they transfer pollen, enabling the plants to reproduce. How is climate change affecting this relationship between bees and pollination? Explain the relationship between bees and pollination.	Pg.76
18	COLLECT EVIDENCE How do plants, such as the purple tansy, find mates and spread seeds? Record your evidence (B) in the chart at the beginning of the lesson.	Pg.76

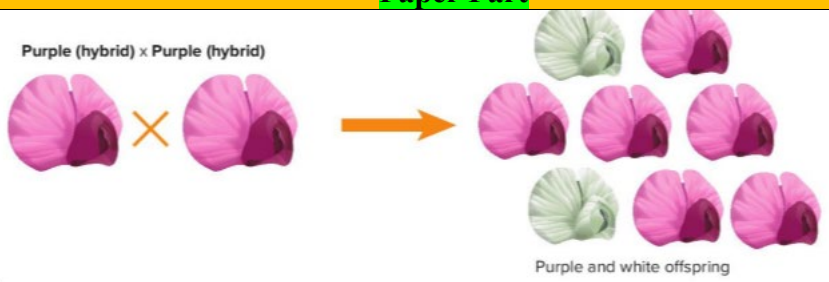
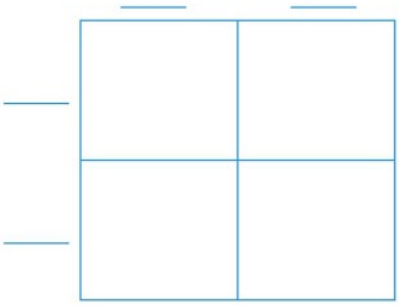
19	INVESTIGATION **Testing Plant Growth** In this investigation, you will observe and collect data on plants in different environments. How does high salinity, cold, heat, or drought affect the growth of plants? 1. Inspect the plants that your teacher has prepared for this investigation, and record your observations about each plant in the chart.  Copyright © Mc Graw-Hill Education	Pg.77 Q1
20	Mr. Blake is preparing to plant his yearly corn crop. In order to produce the best crop yield possible, he considers a variety of factors that can affect the growth of the corn. **3.** Which of the following is not a factor that can affect the growth of the corn crops? **A** gene for color of kernels **B** amount of water given **C** the space available for the plants to grow **D** all of the above	Pg.81 Q3
21 Q	**THREE-DIMENSIONAL THINKING** **Analyze and interpret the data** from the Investigation *Testing Plant Growth* to explain the **cause and effect** relationship between environmental factors and plant growth. Record your response in your Science Notebook.	Pg.78

Treatment	Plant height	Number of leaves	Wilting? Yes/No	Color of leaves	Root length
Control					
Drought					
Cold					
Saline					
Heat					

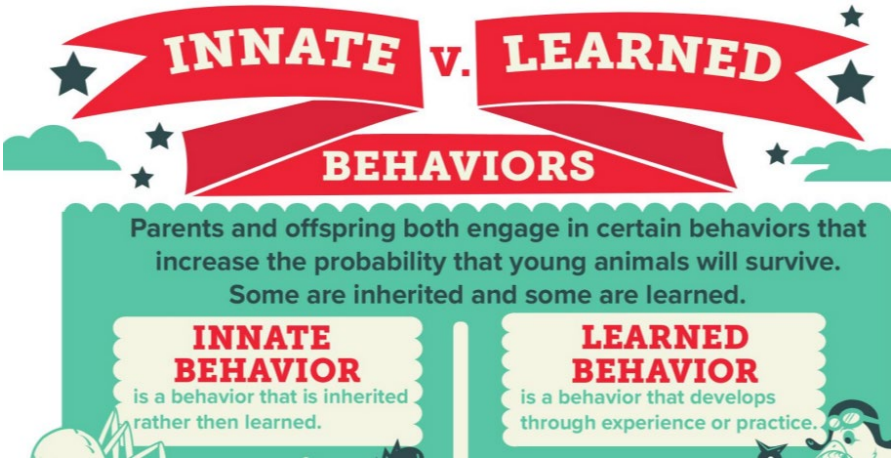
	In the investigation *Testing Plant Growth* you observed environmental factors that affect how plants grow. A tropism (TROH pih zum) is a response that results in plant growth toward or away from a stimulus. The growth of a plant toward or away from light is called **phototropism.** A plant has a light-sensing chemical that helps it detect light. The response of a plant to touch is called **thigmotropism** (thihg MAH truh pih zum). The vine growing up the fence in the photo clings to the fence in response to touching it. The response of a plant to gravity is called **gravitropism.** Stems grow away from the pull of gravity, while roots grow toward the pull of gravity.  How do plants respond to external stimuli?	
22	COLLECT EVIDENCE What factors affect how plants, such as the purple tansy, grow? Record your evidence (C) in the chart at the beginning of the lesson.	Pg.78
23	**Analyze and Conclude** **6.** Use your bar graph to explain changes in Earth's human population over time.	Unit 4 Pg.12 Q6
24	**7.** What impact might this have on land?	Pg.12 Q7

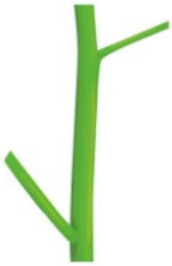
25	**THREE-DIMENSIONAL THINKING** Summarize your understanding of the cause-and-effect relationships between human activities and the environmental impacts on land in the table below. **Type** | **Causes** | **Effects** Deforestation Agriculture Urbanization Waste Disposal	Pg.22
26	**Three-Dimensional Thinking** Study the nitrogen cycle shown in the figure below. Nitrogen is an element that cycles naturally through ecosystems. Living things use nitrogen to make proteins. When these living things die and decompose or produce waste, they release nitrogen into the soil or the atmosphere. Scientists estimate that human activities have doubled the amount of nitrogen cycling through ecosystems.  **2.** How does the use of fertilizers affect the environment? **A** Fertilizers decrease the amount of nitrogen in the environment. A decrease in nitrogen can cause an increase in lightning and storms. **B** Fertilizers increase the amount of nitrogen in the environment. Excess nitrogen can pollute groundwater and surface water. **C** Fertilizers decrease the amount of nitrogen in the environment. This affects the rate at which plants and animals decompose. **D** Fertilizers increase the amount of nitrogen in the environment. An increase in nitrogen disrupts plant processes.	Pg.31 Q2

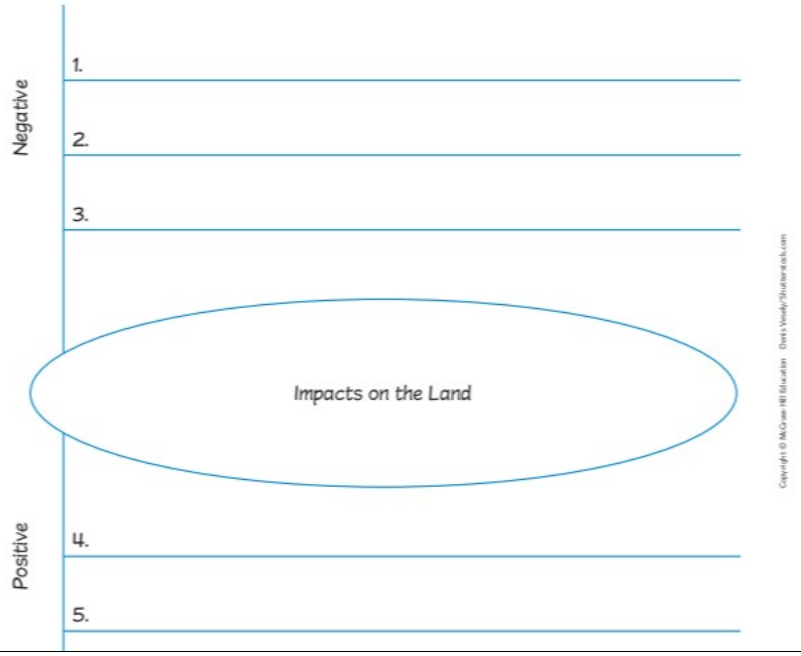
27	**THREE-DIMENSIONAL LEARNING** Write a short statement to present to your city council supporting or not supporting the construction of a new dam in your community. What **changes** would a dam bring to your local ecosystem? **Explain** your reasoning.	Pg.42
28	**Three-Dimensional Thinking** Read the passage below. Then answer the question that follows. Estuaries form where rivers containing freshwater flow into the salty waters of an ocean. The mixture of fresh and salt water stays balanced as long as both the river and ocean tides continue to mix at the river's mouth. Estuaries are usually calm and often contain many food sources. Because of this, many species of fish and other organisms breed and raise their offspring in estuaries. These organisms are adapted to life in brackish estuary waters. **2.** **LIFE SCIENCE** **Connection** A new recreation area is being built upstream from an estuary that is known for its abundance of fish and turtles. A dam will be built across the river and a large lake will form behind it. What effect will the dam have on the organisms living in the estuary? **A** Organisms adapted to living only in brackish water will survive. **B** Organisms adapted to living in brackish water will move to live in the open ocean. **C** Some of the organisms will die because the water will be less salty. **D** Some of the organisms will die because the water will be more salty.	Pg.57 Q2
29	**COLLECT EVIDENCE** What are the causes and effects of water pollution? Record your evidence (B) in the chart at the beginning of the lesson.	Pg.51
30	**COLLECT EVIDENCE** What are ways in which we can monitor or minimize human impact on Earth's water? Record your evidence (C) in the chart at the beginning of the lesson.	Pg.55

Paper Part		
31	 **THREE-DIMENSIONAL THINKING** What **patterns** do you notice in the results of Mendel's second-generation cross between hybrid plants with purple flowers? **Explain** how the results may have occurred.	Pg.12
32	INVESTIGATION **Fruit Fly Traits** **1.** Use the Punnett square below to complete a cross between a female fruit fly with straight wings (cc) and a male fruit fly with curly wings (CC).  Curly wings (CC) Straight wings (cc)   **2.** According to your Punnett square, which genotypes are possible in the offspring?	Pg.20

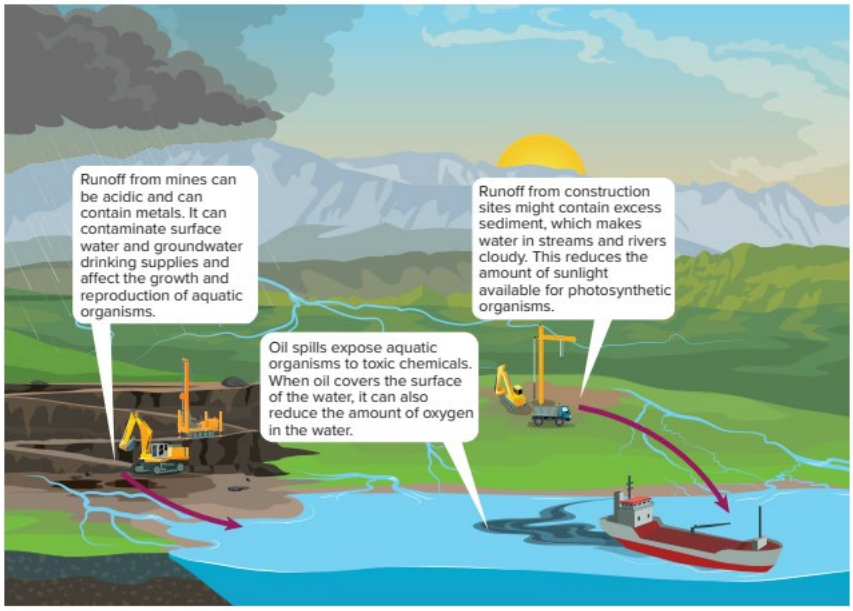
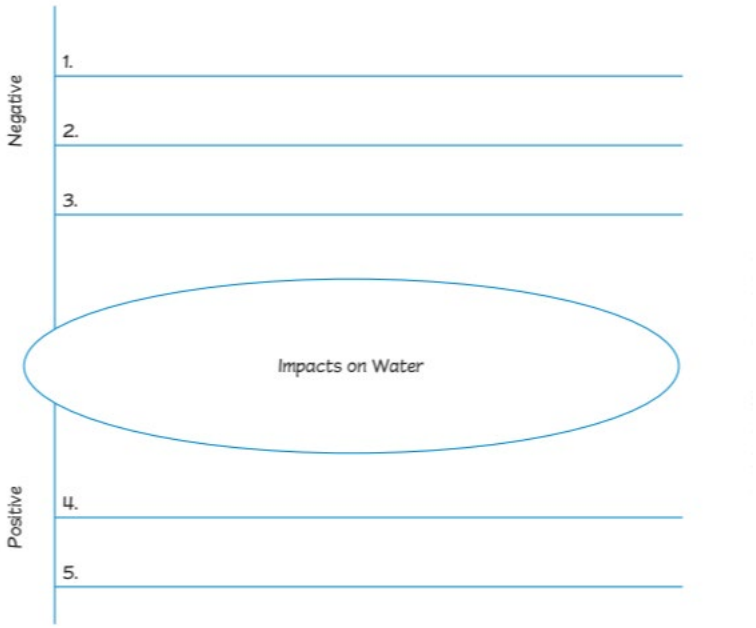
33	**THREE-DIMENSIONAL THINKING** A cross between two heterozygous pea plants with yellow seeds produced 1,719 yellow seeds and 573 green seeds. What is the ratio of yellow to green seeds? **Construct an explanation** about what the results show regarding inheritance.	Pg.18
34	INVESTIGATION **Break Off a Piece**   **1.** Examine the pictures of the hydra above. What evidence do you observe that the hydra reproduced? **2.** What are some advantages and disadvantages of this type of reproduction? 	Pg. 33 Q1-2
35	COLLECT EVIDENCE What are the advantages and disadvantages of the different types of reproduction, such as that of the sea star at the beginning of the lesson? Record your evidence (C) in the chart at the beginning of the lesson.	Pg. 36

36	Hydras are organisms that live in freshwater environments. They have a tubelike body and a mouth at one end. Around the mouth are stinging tentacles that help to capture food. Depending on the conditions, hydras can reproduce sexually or asexually.  **3.** Based on your observations, which statement best explains what is happening to the hydra in the figure above? **A** The hydra is reproducing asexually by budding a new hydra. **B** The hydra is reproducing asexually by splitting in two. **C** The hydra is reproducing sexually by grafting to another hydra. **D** The hydra is reproducing sexually by releasing sex cells into the water.	Pg.39 Q3
37	 What are some **innate** and **learned** behaviors that help young animals survive?	Pg.53
38	**ENCOUNTER THE PHENOMENON** | What structures enable this purple tansy plant to successfully reproduce, and what affects how it grows?	Pg.67

39	# How can plants find mates and spread seeds if they cannot move? Plants can't walk around to find mates or spread seeds, so how do plants reproduce successfully? And why aren't all plant offspring right next to the parent plant? There are a variety of different ways pollination can occur and seeds can spread. ENGINEERING **LAB** Blowing in the Wind In order for reproduction to be successful, seeds must be dispersed to places where resources, such as light, food, water, and space, are available. In this lab, you will work with a partner to design a seed structure that can by carried by wind as far as possible. **Safety** **Materials** paper scissors tape 	Pg.72
40	**Three-Dimensional Thinking** **2.** Which of the following is a plant structure that increases the probability of successful reproduction? A  B  C  D 	Pg.81 Q2

41	**THREE-DIMENSIONAL THINKING** Summarize your understanding of the cause-and-effect relationships between human activities and the environmental impacts on land in the table below. 	Pg.22
42	**1. Record** some of the negative and positive impacts that humans have on the land. 	Pg.30

Type	Causes	Effects
Deforestation		
Agriculture		
Urbanization		
Waste Disposal		

43		Pg.47
44	**1. Record** some of the negative and positive impacts that humans have on Earth's water. 	Pg.56