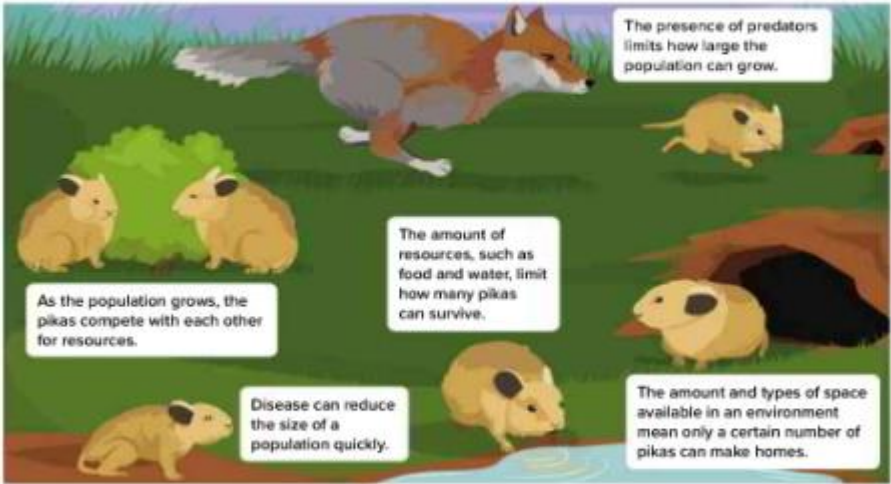



Grade 7 General Science EOT1 Practice Questions

Question No.	Example	Page in G7 General Inspire Textbook
MCQ		
1	<p>Available energy decreases.</p> <p>Trophic level 3 (1 percent of energy available)</p> <p>Trophic level 2 (10 percent of energy available)</p> <p>Trophic level 1 (100 percent of energy available)</p> <p>Calculate the amount of energy available at each trophic level.</p>	38
2	<p>3. In an energy pyramid, approximately 10 percent of the energy available in one trophic level is transferred to the next level. Which statement helps explain why this occurs?</p> <p>A Consumers eat both producers and other consumers.</p> <p>B Organisms use most of the available energy to fuel their own life processes.</p> <p>C Predators eat more organisms in their own level than organisms in other levels.</p> <p>D Producers exist in only the lowest level of the pyramid.</p>	41
3	<p>COLLECT EVIDENCE</p> <p>How do human disruptions, such as the destruction of a forest, affect populations?</p>	118
4	<p>Real-World Connection</p> <p>4. Argue A city council member wants to implement a policy that will allow farmers to dump nitrogen-containing fertilizers in the local water systems. Construct an argument against this policy, focusing on the effect it would have on local aquatic species.</p>	122
5	<p>PHYSICAL SCIENCE Connection Not all the energy an organism gets is used for life processes. Some is released to the environment as thermal energy. You might have read that energy cannot be created or destroyed, but it can change form. This idea is called the law of conservation of energy.</p> <p>Which organism gets its energy from the Sun, and which organism gets its energy by eating other organisms?</p>	30
6	<p>Define ‘Law of conservation of Energy’.</p>	30
7	<p>COLLECT EVIDENCE</p> <p>How do plants and animals process energy from food?</p>	19

8	<h2>How are photosynthesis and cellular respiration related?</h2> <p>While animals only perform cellular respiration, plants conduct both cellular respiration and photosynthesis. How do the processes compare?</p> <p>Comparing Photosynthesis and Cellular Respiration Photosynthesis requires the reactants carbon dioxide and water. Oxygen and glucose are the products. Most plants, some protists, and some bacteria are photosynthetic. Photosynthesis is important because plants help maintain the atmosphere you breathe. Photosynthesis produces most of the oxygen in the atmosphere.</p> <p>Cellular respiration requires the reactants glucose and oxygen, produces carbon dioxide and water, and releases energy. Most organisms perform cellular respiration. Cellular respiration is important because if your body did not break down and rearrange the food you eat, you would not have energy to do anything. Plants produce their own food, but without cellular respiration, plants could not grow, reproduce, or repair tissues.</p>	20				
9	<p>5. Summarize how your body performs cellular respiration and how it relates to playing in gym class.</p>	24				
10	<h3>COLLECT EVIDENCE</h3> <p>How does water move through the environment?</p>	52				
11	<p>Summarize It!</p> <p>1. Model the water cycle, using arrows to show movement.</p>	56				
12	Define extinction .	80				
13	Define endangered species .	80				
14	<h3>COLLECT EVIDENCE</h3> <p>How can you explain other types of relationships in ecosystems?</p>	98				
15	<p>Summarize It!</p> <p>1. Identify how populations interact in a community.</p> <table><thead><tr><th>Relationship</th><th>Description</th></tr></thead><tbody><tr><td>Competitive</td><td></td></tr></tbody></table>	Relationship	Description	Competitive		100
Relationship	Description					
Competitive						
16	<h3>COLLECT EVIDENCE</h3> <p>How do human disruptions, such as the destruction of a forest, affect populations?</p>	118				
17	<p>5. Describe Imagine a forest near you that has a high level of biological diversity. A flash flood has swept through the forest. Describe how such a disruption would change the populations within the forest.</p>	122				
18	<h3>COLLECT EVIDENCE</h3> <p>How does nitrogen move through the environment?</p>	53				

19	<p>The diagram illustrates the nitrogen cycle in a landscape with trees, a cow, and soil. Text boxes describe the following processes:</p> <ul style="list-style-type: none"> Nitrogen gas in atmosphere: Bacteria in soil convert nitrogen compounds into nitrogen gas, which is released into the air. Lightning: Lightning changes nitrogen gas in the atmosphere to nitrogen compounds. The nitrogen compounds fall to the ground when it rains. Animals eat plants: A cow is shown eating grass. Nitrogen-fixing bacteria: Nitrogen-fixing bacteria on plant roots convert unusable nitrogen in soil to usable nitrogen compounds. Decaying organic matter: Decaying organic matter and animal waste return nitrogen compounds to the soil. Plants take in: Plants take in and use nitrogen compounds from the soil. Nitrogen compounds in soil: A box labeled 'Nitrogen compounds in soil'. 	53
20	<p>Keisha and her classmates created a model of the nitrogen cycle. Their diagram is shown below.</p> <p>The diagram shows a tree and a cow on a grassy field with soil and bacteria. Arrows indicate the flow of nitrogen. Labels include: 'Decaying plant material', 'Animal waste', 'Decaying animal remains', and 'Bacteria'.</p> <p>2. What is the function of the bacteria shown in the model?</p> <p>A They prevent the nitrogen from harming the plants. B They remove the nitrogen from the soil. C They remove the oxygen from the soil. D They return the nitrogen to the system.</p>	57
21	<p>COLLECT EVIDENCE</p> <p>How do plants, such as sunflowers, use sunlight to produce food?</p>	15
22	<p>1. Explain the transfer of energy and cycling of matter by modeling the chemical reactions of photosynthesis and cellular respiration below. Use arrows to show movement in your model.</p>	22
23	<p>Define eutrophication.</p>	115
24	<p>3. How might a lake suffering from eutrophication affect a population of fish?</p> <p>A The population will grow because of the extra nutrients. B The population will suffer due to decreases in oxygen and habitat loss. C The fish population will not be affected. D The size of the population will waver.</p>	121
25	<p>Define limiting factors.</p>	77

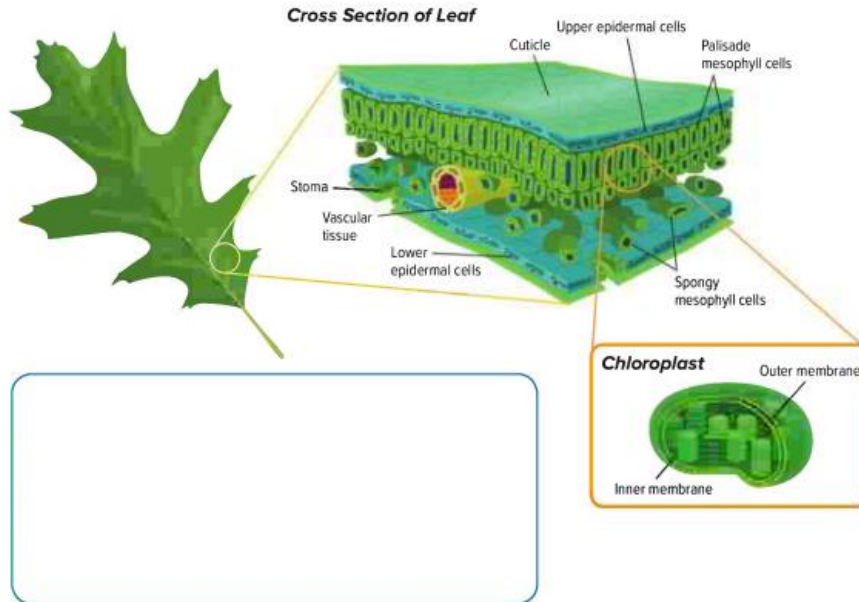
26	<p>INVESTIGATION</p> <h3>Pika Predicaments</h3> <p>Examine the figure of a population of pikas below. Read about how limiting factors affect their population and answer the following question.</p>  <p>In the illustration of the pikas, you examined how limiting factors affected their survivability. Think about everything you need to survive. Choose one factor and construct an explanation about why it might be a limiting factor for the human population.</p>	78
27	<p> THREE-DIMENSIONAL THINKING</p> <p>In your Science Notebook, draw a model of the food chain that you created in the lab. Use arrows to model the flow of energy. Label each organism as a producer or consumer, and label each type of consumer.</p>	35
28	<p>Investigate energy transfer in food chains and food webs by performing one of the following activities.</p> <p><input type="checkbox"/> Model energy transfer in a food chain in the Lab How is energy transferred in a food chain?</p> <p>OR</p> <p><input type="checkbox"/> Observe energy movement through food webs in the Animation Food Webs.</p>	38

29	<div data-bbox="370 226 430 289" data-label="Image"> </div> <div data-bbox="435 239 740 268" data-label="Section-Header"> <h3>Three-Dimensional Thinking</h3> </div> <div data-bbox="375 304 813 325" data-label="Text"> <p>2. Analyze the food web. Which statement is correct?</p> </div> <div data-bbox="508 346 1021 756" data-label="Diagram"> </div> <div data-bbox="402 789 967 982" data-label="List-Group"> <ul style="list-style-type: none"> A The model tracks the transfer of energy as energy flows in this ecosystem. B The transfer of matter back into the environment occurs only at the detritivore level. C The model shows the transfer of matter only. D The decomposers in the model use matter but not energy for their life processes. </div>	41
30	<div data-bbox="358 1024 683 1058" data-label="Section-Header"> <h3>COLLECT EVIDENCE</h3> </div> <div data-bbox="358 1062 821 1083" data-label="Text"> <p>How does carbon move through the environment?</p> </div>	50
31	What are fossil fuels ?	50

INVESTIGATION

Plant Structure

Examine the leaf cross section below. How do you think sunlight is absorbed by a leaf? How are other materials necessary for survival, such as carbon dioxide, oxygen, water, and other nutrients, moved through a leaf? Record your ideas below the cross section.

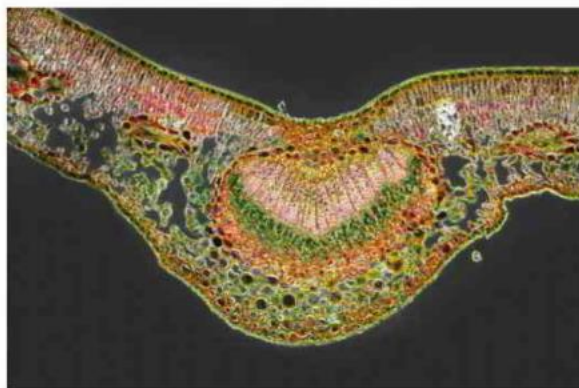


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10

Leaves have many types of cells. Did you notice that? The cells that make up the top and bottom layers of a leaf are flat, irregularly shaped cells called epidermal (eh puh DUR mul) cells. On the bottom epidermal layer of most leaves are small openings called stomata (STOH muh tuh). Carbon dioxide, water vapor, and oxygen pass through stomata. Epidermal cells can produce a waxy covering called the cuticle.

Most photosynthesis occurs in two types of mesophyll (ME zuh fil) cells inside a leaf. These cells contain chloroplasts, the organelle where photosynthesis occurs. Near the top surface of the leaf are palisade mesophyll cells. They are packed together. This arrangement exposes the most cells to light. Spongy mesophyll cells have open spaces between them. Gases needed for photosynthesis flow through the spaces between the cells. You can see many of these structures in the cross section below.



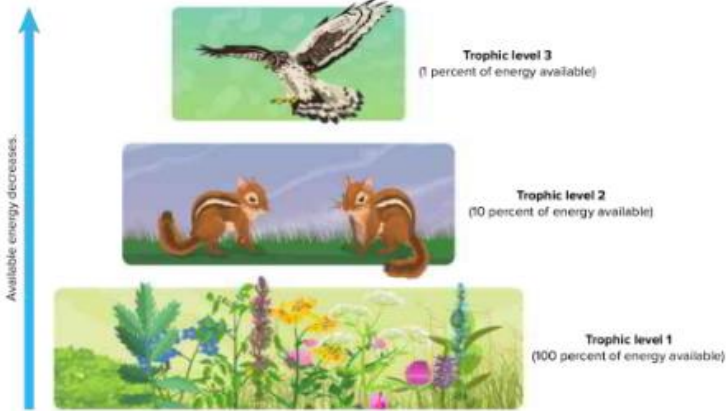
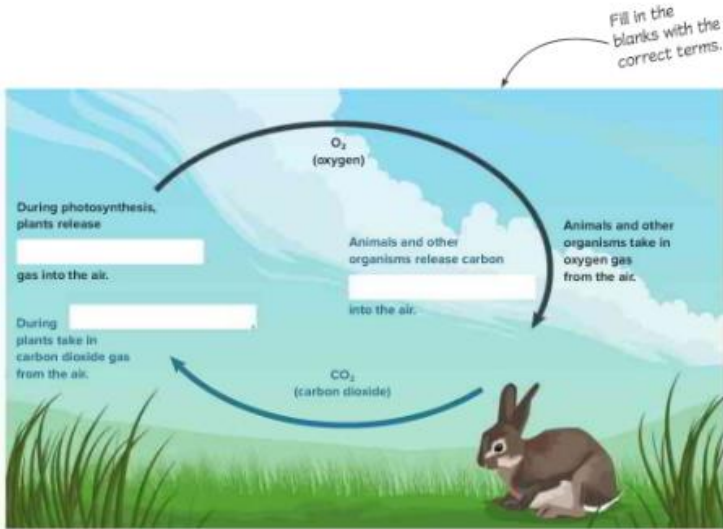
Check out this cross section of a leaf!

33

11

Structure and function of different cells in leaves.

FRQ		
1	<div>COLLECT EVIDENCE</div> <p>How do plants, such as sunflowers, use sunlight to produce food?</p>	15
2	<div>COLLECT EVIDENCE</div> <p>How do plants and animals process energy from food?</p>	19
3	<div>THREE-DIMENSIONAL THINKING</div> <p>Label the image of the system below to track the energy transfer in photosynthesis and cellular respiration. Identify inputs and outputs of each part of the system.</p> <p>Light energy</p> <p>Chloroplast</p> <p>ATP</p> <p>Mitochondrion</p> <p>Light energy</p> <p>$6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{Light energy}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$</p> <p>Photosynthesis</p> <p>$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{ATP (Energy)}$</p> <p>Cellular respiration</p>	20
4	<p>1. Explain the transfer of energy and cycling of matter by modeling the chemical reactions of photosynthesis and cellular respiration below. Use arrows to show movement in your model.</p>	22
5	<div>EVIDENCE</div> <p>A. What evidence have you discovered to explain how producers, consumers, and decomposers obtain energy?</p>	28
6	<div>THREE-DIMENSIONAL THINKING</div> <p>In your Science Notebook, draw a model of the food chain that you created in the lab. Use arrows to model the flow of energy. Label each organism as a producer or consumer, and label each type of consumer.</p>	35
7	<div>COLLECT EVIDENCE</div> <p>How does energy move through an environment?</p>	38
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9	 <p>Available energy decreases.</p> <p>Trophic level 3 (1 percent of energy available)</p> <p>Trophic level 2 (10 percent of energy available)</p> <p>Trophic level 1 (100 percent of energy available)</p>	38
	Calculate the amount of energy available at each trophic level.	
10	<p>Summarize It!</p> <p>1. Model a food web of your choice. Draw arrows to show the transfer of energy among the organisms you select.</p>	40
11	<p>COLLECT EVIDENCE</p> <p>How does carbon move through the environment?</p>	50
12	<p>COLLECT EVIDENCE</p> <p>How does water move through the environment?</p>	52
13	<p>COLLECT EVIDENCE</p> <p>How does nitrogen move through the environment?</p>	53
14	 <p>Fill in the blanks with the correct terms.</p> <p>O₂ (oxygen)</p> <p>During photosynthesis, plants release _____ gas into the air.</p> <p>Animals and other organisms release carbon _____ into the air.</p> <p>Animals and other organisms take in oxygen gas from the air.</p> <p>CO₂ (carbon dioxide)</p> <p>During _____, plants take in carbon dioxide gas from the air.</p>	54
15	<p>COLLECT EVIDENCE</p> <p>How does oxygen move through the environment?</p>	54
16	<p>Summarize It!</p> <p>1. Model the carbon, nitrogen, oxygen, or water cycle, using arrows to show movement. Include inputs and outputs from one of the other cycles.</p>	56

17	COLLECT EVIDENCE How are the animals in Etosha National Park organized in their ecosystem?	75										
18	With a partner, discuss the patterns that you notice in the relationships you have learned about. Explain how you can use this information to identify cause and effect relationships between organisms.	95										
19	COLLECT EVIDENCE Why do some organisms, such as the cleaner shrimp and the moray eel, have symbiotic relationships?	95										
20	Explain One of your classmates thinks that the oxpecker is a helpful organism, while another classmate believes that they are strictly a parasite. Which student do you agree with and why? With a partner, create a podcast to act out the debate.	96										
21	<p>1. Identify how populations interact in a community.</p> <table><tr><th>Relationship</th><th>Description</th></tr><tr><td>Symbiotic</td><td></td></tr><tr><td>a. Mutualism</td><td></td></tr><tr><td>b. Parasitism</td><td></td></tr><tr><td>c. Commensalism</td><td></td></tr></table>	Relationship	Description	Symbiotic		a. Mutualism		b. Parasitism		c. Commensalism		100
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Symbiotic												
a. Mutualism												
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c. Commensalism												
22	Define ecological succession .	109										
23	Define climax community .	109										
24	Define Eutrophication .	115										
25	COLLECT EVIDENCE How do physical changes to ecosystems, like the forest fire in the beginning of the lesson, occur?	115										