

Name: _____ Date: _____ Class: _____

8th Grade Biology Summer Assignment- Summer 2026

Directions: The following is a cluster from the new Biology Regents. Clusters are groups of test questions tied to a single, real-world phenomenon. They include reading passages, data tables, models and other visuals followed by a mix of multiple choice and constructed response questions. Use the breakdown of a cluster template to go through the cluster and answer the questions.

DUE: Wednesday, September 30, 2026

THIS WILL COUNT AS A TEST GRADE FOR MARKING PERIOD 1

Breaking Down A Biology Cluster

1. Step 1: Understand what a “cluster” really is

- What is included in this cluster (reading, graphs, models, tables, etc)? What is the title? What do you think this cluster may be about?

2. Step 2: Look at the visuals; graphs, diagrams, tables, models

- What are these visuals showing? What changed? What is being compared? Is there a trend or pattern? What biology topics are being covered by these visuals?

3. Step 3: Read the questions BEFORE the passage

- Circle key vocabulary
- Notice repeated words
- Underline action words liker:
 - “Explain”- why it happened
 - “Describe”- what happened
 - “Identify”- name it
 - “State evidence”- point to the proof
 - “Compare”- both
 - “Evaluate”- Best + Why

4. Step 4: Chunk the passage into mini parts:

For each paragraph ask:

- What happened?
- Why did it happen?
- What evidence supports it?

Paragraph 1

Paragraph 2

Paragraph 3

Paragraph 4

5. Step 5: translate science language into simple language

Example:

“An increase in carbon dioxide led to decreased ocean pH.”

Translate to:

More CO₂ made the ocean more acidic.

6. Step 6: Use the “CER” strategy for open ended questions

Many Regents cluster questions are basically:

C = Claim → Answer the question directly.

E = Evidence → Use data from the chart/table/reading.

R = Reasoning → Explain the biology concept connecting them.

Example:

Claim: The plants grew faster in light.

Evidence: Group A increased 8 cm while Group B increased 2 cm.

Reasoning: Plants need light for photosynthesis.

7. Step 7: Memorize the BIG biology concepts/patterns

Most clusters repeat the same core ideas.

Focus heavily on:

- Photosynthesis vs cellular respiration
- Homeostasis & feedback mechanisms
- DNA → proteins → traits
- Natural selection
- Ecosystems/energy flow
- Experimental design
- Human body systems
- Mutations and inheritance

The Regents loves repeating these themes in different forms.

8. Step 8: for graphs/data tables, always ask these 4 questions

- What are the variables?
- What trend do I see?
- Is it increasing, decreasing, fluctuating or constant?
- What biological reason explains the trend?

Graph/Data 1

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Graph/Data 2

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9. Step 9: Don't panic over unfamiliar topics

Even when the topic seems strange, the questions usually rely on familiar skills:

- reading data
- identifying patterns
- applying core biology concepts

The Regents often gives you the information you need in the cluster itself.

10. Step 10: practice backward

Instead of only taking full practice tests:

- Do one cluster at a time
- Review WHY each answer was correct
- Be aware of words “always”, “never”, “all”, “none”
- Identify:
 - vocabulary issue?
 - graph-reading issue?
 - concept issue?

Question	Why was the answer the correct one?	Issues I had with the question (vocabulary, reading comprehension, concept, etc)
1		
2		
3		
4		
5		

Base your answers to questions 1 through 5 on the information below and on your knowledge of biology.

Dinosaurs: Some Live and Some Die

Avian (bird-like) and non-avian dinosaurs in the northern hemisphere lived in extreme heat. The average summer temperature could range from 81° to 104°F. Winters were mild and wet, averaging around 59°F. There was no polar ice at this time. Most non-avian dinosaurs had a mass of about 7700 pounds. Most avian dinosaurs weighed significantly less and most mammals that coexisted with the dinosaurs weighed less than a pound.

Diversity of Life Pre-asteroid Impact



A giant asteroid struck just off the coast of Mexico 66 million years ago. The asteroid impact event is referred to as the K-T extinction. Enormous amounts of dust, sulfur, and carbon dioxide entered the atmosphere. It caused Earth's average surface air temperatures to drop by as much as 47° F. Dust from the impact blocked the Sun's radiation for an extended amount of time, and photosynthesis was drastically reduced.

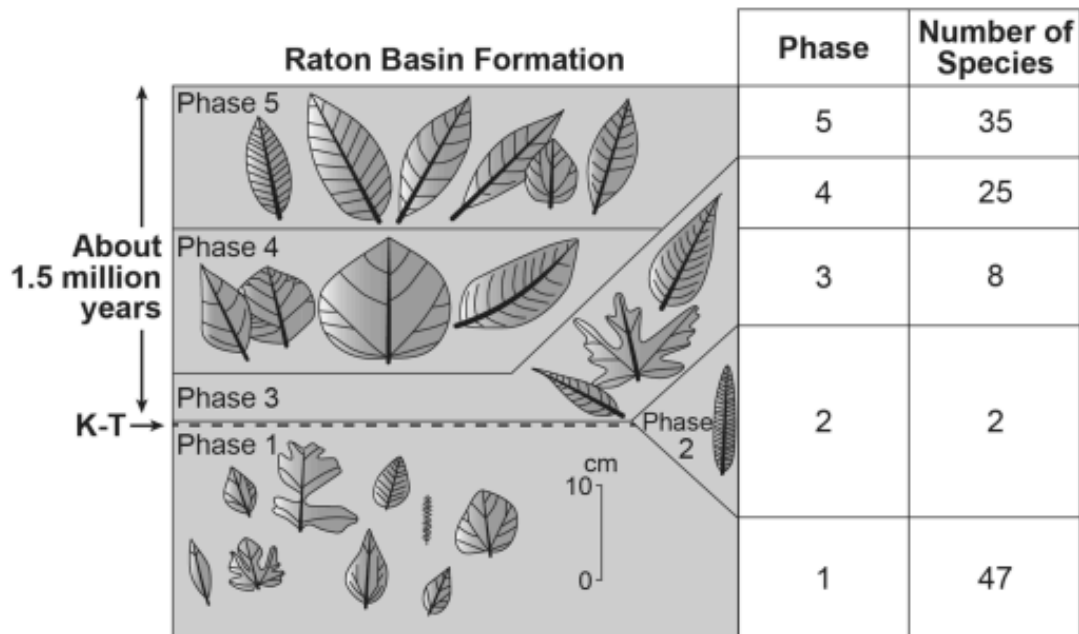
Many dinosaurs were immediately killed while others managed to survive for a period of time. All of the non-avian dinosaurs went extinct. The mammals that survived the impact increased in number. They continued to survive and evolve.

- 1 A possible explanation for why some organisms survived and others did not is that some were
 - (1) herbivores that had a large variety of plants to eat
 - (2) able to evolve quickly into better adapted non-avian species
 - (3) better able to compete successfully after the asteroid impact
 - (4) faster and stronger than others and were able to outrun the blast of the impact

- 2 Explain how the evidence provided supports the claim that non-avian dinosaurs went extinct after the impact because of the traits present in their populations. [1]

When scientists analyzed leaf fossils formed after the asteroid impact, they discovered that the number and types of plants changed over time. They grouped the fossils found in the New Mexico and Colorado rock layers into “phases” of changing diversity. During this time, the environment was gradually warming.

Table 1: Leaf Fossils as Indicators of Diversity in New Mexico and Colorado Rock Layers



- 3 Which statement provides evidence that could be used to support the claim that the evolution of plants is the result of changes that occurred in the environment?
- (1) The diversity of plants in Phase 1 remained constant after the K-T extinction event changed environmental conditions on Earth.
 - (2) The number of plant species decreased during the 1.5 million years before the K-T extinction event due to stable environmental conditions on Earth.
 - (3) The diversity of plant species increased during the 1.5 million years after the K-T extinction event changed environmental conditions on Earth.
 - (4) The number of plant species remained stable from Phase 3 to Phase 5 as the environment on Earth recovered from the K-T extinction event.

Table 2: Mammal Evolution

Mammal	When Appeared After K-T Extinction (years)	Body Mass (Kg)	Feeding Niche	Comparative Size
L	300,000	4-6	Ate only insects, and had small, sharp teeth	Raccoon size
M	450,000	50	Herbivore, with canine teeth	Chimpanzee size
N	680,000	44-77	Omnivore, with canine teeth and massive jaws	Wolf size
O	720,000	34-56	Herbivore, with 2-3 rows of molar teeth	Sheep size

- 4 Which statement provides evidence that changes in an environment may cause changes in mammal species?
- (1) Mammals got larger in body size as plant diversity decreased.
 - (2) As the type of plants changed, the tooth and jaw structure of mammals changed.
 - (3) Where the animals lived changed as the number of plant species increased.
 - (4) The mammals listed in the chart were adapted to feeding on the same species of plants.

- 5 Evaluate all the information given and complete the table by providing evidence that supports the claim that changes in environmental conditions may result in: [1]

increased numbers of individuals of some species	
the emergence of new species	
the extinction of other species	