



GOAL GETTERS CHALLENGE

ACADEMIC FOCI
GRADES 9–12 (HIGH SCHOOL)

Critical Reading

Passage 1: Insulin Resistance and Type 2 Diabetes

Type 2 diabetes develops when the body becomes resistant to insulin, a hormone produced by the pancreas that allows cells to absorb glucose from the bloodstream for energy. Over time, insulin resistance causes glucose to build up in the blood, a condition known as hyperglycemia. Left unmanaged, chronically high blood glucose levels can damage blood vessels and nerves, increasing the risk of complications such as heart disease, kidney damage, and vision loss. Health centers often screen for diabetes using a blood test called hemoglobin A1c, which reflects average blood sugar levels over the past two to three months. Early diagnosis and lifestyle changes, such as regular physical activity and balanced nutrition, can help many patients manage or even improve insulin sensitivity.

1. Summarize the main idea of the passage in one or two sentences.

1. Explain the cause-and-effect relationship between insulin resistance and hyperglycemia.

1. Define "hyperglycemia" and "insulin resistance" using context clues from the passage.

1. Why is the hemoglobin A1c test useful for reflecting a patient's blood sugar levels over time, rather than at a single moment?

1. Evaluate why early diagnosis is emphasized as important in the passage.



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Critical Reading

Passage 2: Insulin Resistance and Type 2 Diabetes

Hypertension, or chronically elevated blood pressure, develops when blood consistently exerts excessive force against artery walls. Over time, this added strain can cause arteries to stiffen and narrow, a process called atherosclerosis, which increases the workload on the heart and raises the risk of heart attack, stroke, and kidney disease. Blood pressure is recorded as two values—systolic (pressure during a heartbeat) and diastolic (pressure between heartbeats)—and is often described as the "silent" condition because it frequently produces no noticeable symptoms until significant damage has occurred. Lifestyle interventions, including reduced sodium intake, regular physical activity, and stress management, along with medication when needed, can help patients control blood pressure and lower long-term health risks.

1. Summarize the main idea of the passage in one or two sentences.

2. Explain why hypertension is often called a "silent" condition, and why this makes it dangerous.

3. Describe the relationship between atherosclerosis and increased cardiovascular risk.

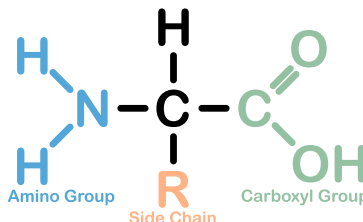
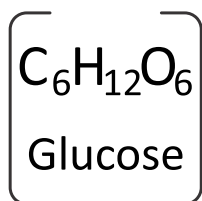
4. Define "systolic" and "diastolic" using context clues from the passage.

5. Evaluate why a combination of lifestyle changes and medication might be more effective than either approach alone.



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Science & Math

Biochemistry

1. Explain the role of enzymes in breaking down glucose during cellular respiration.

2. Describe how insulin signaling allows cells to absorb glucose.

3. Explain how chronic hyperglycemia can damage blood vessels over time.

Organic Chemistry

1. Aspirin contains a carboxylic acid functional group. Explain how this functional group might affect the molecule's solubility and reactivity.

1. Identify the functional group(s) present in a simple amino acid, and explain their role in forming proteins.

1. Explain why understanding carbon-based molecular structures is important for developing medications.



GRADES 9–12 (HIGH SCHOOL)

1. A medication has a half-life of 6 hours, meaning half of the drug in the body breaks down every 6 hours. If a patient's body initially contains 400 mg, write an exponential equation modeling the amount $A(t)$ remaining after t hours, and calculate the amount remaining after 12 hours.

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Solving Equations

3. A clinic's data shows blood pressure readings increasing linearly from 118 to 132 over 6 monthly checkups. Write a linear equation for systolic pressure P as a function of checkup number n , and use it to predict the reading at the 8th checkup.



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Goal Getter Challenge

Record a short video explaining how you solved at least one problem from the Critical Reading section and one from the Science & Math section. Be clear, specific, and confident in your explanation, and speak from knowledge rather than notes.

The first two students with **the best submissions will earn Sugarfire x Jordan Walker swag.**

Submission deadline: August 28th.