



# Biology 1<sup>st</sup> Quarter FINAL Exam

## General Instructions

- Write Name** Neatly write your name at the top of each page before starting.
- Relax** Relax and breathe. This is only an exam.
- Scan** Scan through the entire test before answering. Manage your time well.
- Start** After scanning, begin with the first question.
- Continue** Keep going. If you find a question too difficult, skip it and return to it later.
- Simple first** Give answers for questions you can complete more easily first.
- Harder last** Once complete with easier questions, go tackle the more difficult ones.
- Confirm** When about 5 minutes remain, confirm you've responded to all questions.

## Obvious Reminders

- Do not cheat. Do not look at another student's responses.
- Do not let others see your answers.
- Do not talk while the test is underway – even if you finish early.
- Do not cause distractions.
- Do not use your cell phone.
- Do not misbehave.
- Avoid writing IDK, I don't know, or generic responses.

## Explanations and Tips

- Questions appear alongside a Topic Identifier number such as **14.05**
  - This example *topic identifier number* represents topic 14
  - This example *topic identifier number* represents question #5 from topic 14
- In all, there are 38 questions. At 90 seconds per question, the test will take 57 minutes to complete.

## Grading

- Unlike many texts and quizzes from Mr. Honeycutt, this exam has right/wrong answers.
- Responses must be fully correct to received credit for that response. No partial credit given.
- Each question is worth 3% of a student's total score.
  - Correctly answering 34 or more questions will receive a 100% for this exam
  - Correctly answering 30 or more equals an A (90% or more)
  - Correctly answering 27 or more equals a B (81% or more)
  - Correctly answering 23 or more equals a C (69% or more)
  - Correctly answering 20 or more equals a D (60% or more)
  - All students will receive a minimum of 50% or better if a best effort is demonstrated



# Topic 11 – What is Biology?

Circle “True” for each sentence that is true.  
Cross-out “True” for sentences that are false.

11.01

- True Biology is the study of living organisms  
True Biology is the study of all matter – living and non living.

11.02

- True Some of the lessons this year may include concepts from anatomy.  
True Biology lessons always include concepts of astronomy.

11.03

- True A scientific law describes an observable occurrence in nature.  
True A scientific law is an unproven hypothesis.

11.04

- True The “cell” is an important concept in biology.  
True The “cell” is not related to concepts of biology.

11.05

- True Cells are called the fundamental unit of life.  
True Cell theory describes that living organisms are made up of cells.

11.06

- True Cells are a theory discovered about a decade ago.  
True Cell theory describes how all matter is made up of cells.

11.07

- True Cells are the basic unit of structure in all living organisms.  
True Muscular systems are the basic unit of structure in all organisms.

11.08

- True Biology can be divided into many specialized fields.  
True Biology is a single type of science with no specialized fields.





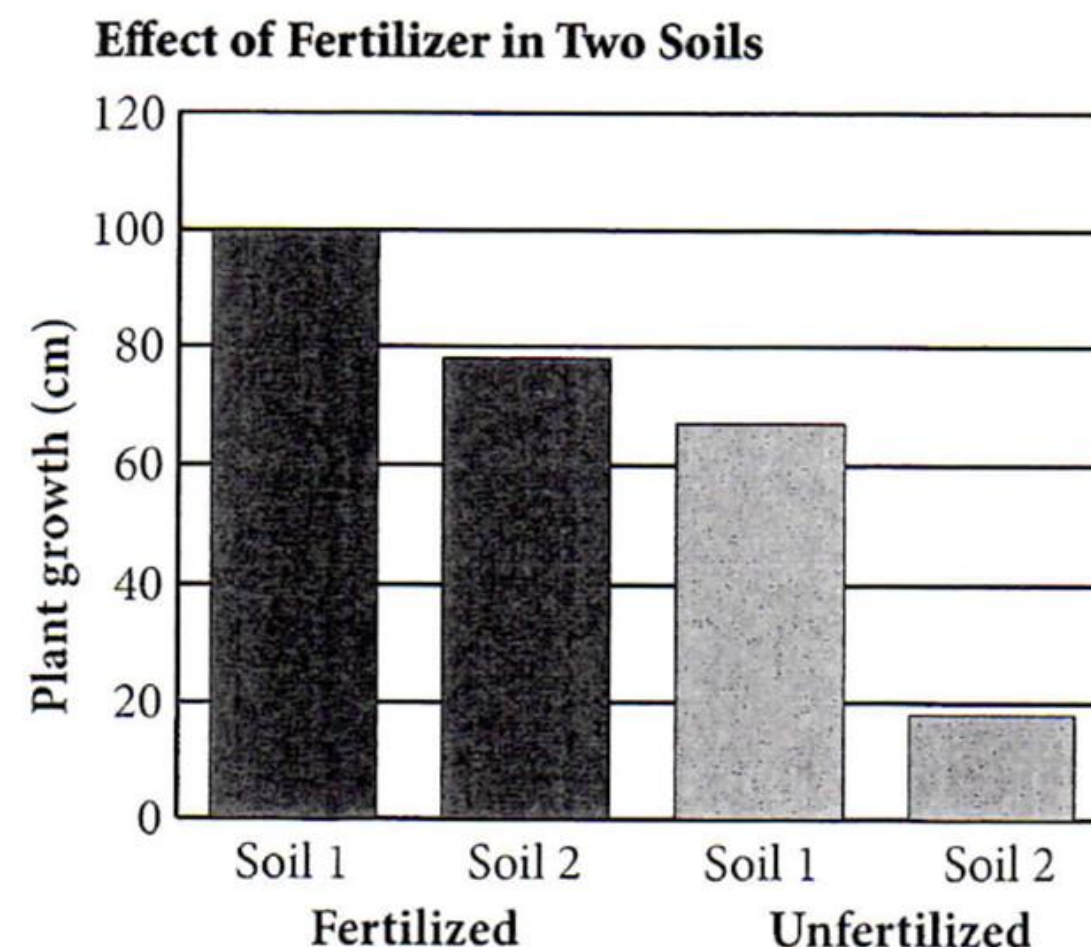
# Topic 11 – What is Biology?

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

11.09

A scientist wants to know how a certain fertilizer affects the growth of tomato plants growing in two different soils. What conclusion can be drawn from the graph shown here?

- A Soil 1 and Soil 2 are the same.
- B The fertilizer has a greater effect in Soil 1.
- C The fertilizer has a greater effect in Soil 2.
- D Soil 1 absorbed more fertilizer than Soil 2.



11.10

Students hypothesized that water pollution affects the growth of fish. In an experiment, they added the same amount of food to ponds polluted by fertilizers and industrial waste. They measured fish growth and found that most fish grow slowly in each of these environments. What part of their experiment did they forget to include?

- A a group to serve as a control
- B a hypothesis to test
- C a theory to explain their results
- D a procedure to follow

11.11

Which of the following is the *best* example of biodiversity?

- A In Sri Lanka, over 30 species of tree frog are in danger of becoming extinct.
- B Atlantic salmon may swim 500 miles against a river current just to spawn.
- C Sequoia National Park has more than 1200 plant species.
- D Birds have feathers with different colors.





# Topic 14 – Cell Organization

1. Scan each of the four paragraphs presented on this page.
2. Underline one complete sentence contained in each paragraph.
3. Copy the two most important sentences of those you underlined.

*Underline one complete sentence in paragraph 1.*

**Paragraph 1.** The word “cell” comes from a Latin word. Originally a Latin word was used. The Latin word was “cella.” The Latin word “cella” means “small room.” In English speaking countries, we translate the Latin word to English. We call them cells.

*Underline one complete sentence in paragraph 2.*

**Paragraph 2.** In the year 1665, a man named Robert Hooke discovered cells in cork. Later, he found them in living plant tissue. He found the cells by using a compound microscope. Robert Hooke used the Latin word cella to describe these “small rooms.”

*Underline one complete sentence in paragraph 3.*

**Paragraph 3.** Cells are the basic unit of all known living organisms. Cells are the basic unit of all known life. Cells are the basic structural, functional, and biological unit of life. A cell is the smallest unit of life that can independently replicate.

*Underline one complete sentence in paragraph 4.*

**Paragraph 4.** Cell biology is a branch of biology. Cell biology studies the structures and functions of cells. Cell biology focuses on the idea that the cell is the basic unit of life. Cell biology explains the structure, components and organization of cells. It studies how cells interact.

*Copy the two most important sentences of those you underlined*

**14.01**

*Important sentence*

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**14.02**

*Important sentence*

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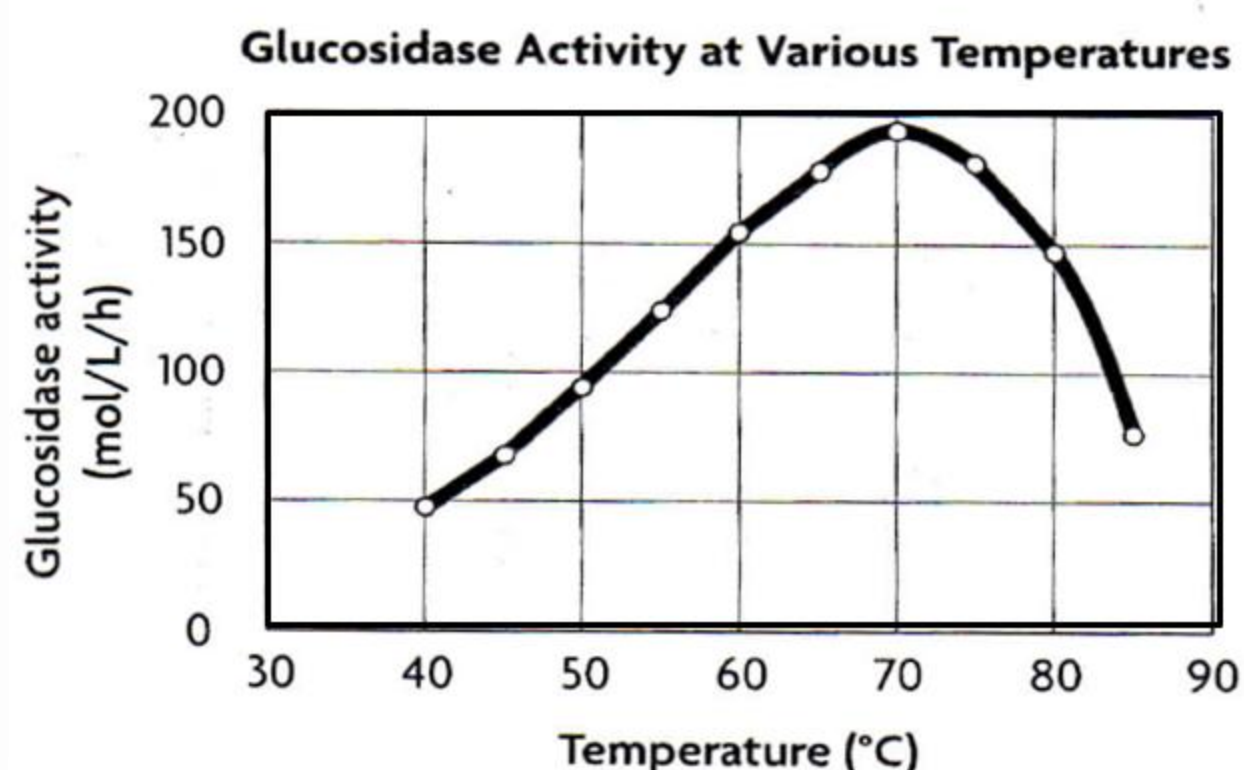


# Topic 14 – Cell Organization

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

**14.03** This graph shows the activity of an enzyme called glucosidase. What can you conclude from these data?

- A Glucosidase breaks down glucose substrates.
- B Glucosidase functions best around 70°C.
- C Glucosidase does not function below 70°C.
- D Glucosidase is not affected by temperature.

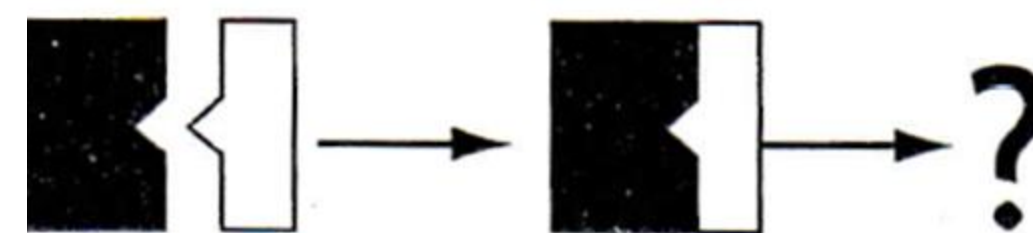


**14.04** An animal's stomach contains enzymes that break down food into smaller molecules that the animal's cells can use. Enzymes perform this function by

- A participating in chemical reactions.
- B increasing the temperature.
- C changing the ionic concentration.
- D lowering the pH.

**14.05** The diagram shows how an enzyme (black) binds to a substrate (white) during a chemical reaction. When this reaction is complete, the

- A enzyme's shape will be different.
- B surrounding temperature will have increased.
- C hydrogen ion concentration will have decreased.
- D substrate will be a different molecule.







# Topic 14 – Cell Organization

For each question presented, circle A, B, C, or D. Circle only the best response for each question.

14.06

The cell theory states that the cell is the most basic unit of life, all organisms are made of cells, and all cells come from cells. What makes the cell theory a scientific theory?

- A It is based on a scientific publication that is read by scientists worldwide.
- B It is based on the work of many scientists and leads to accurate predictions.
- C It is based on ideas that have been proven true and that are not subject to revision.
- D It is based on preliminary evidence but still needs to be confirmed with experiments.

14.07

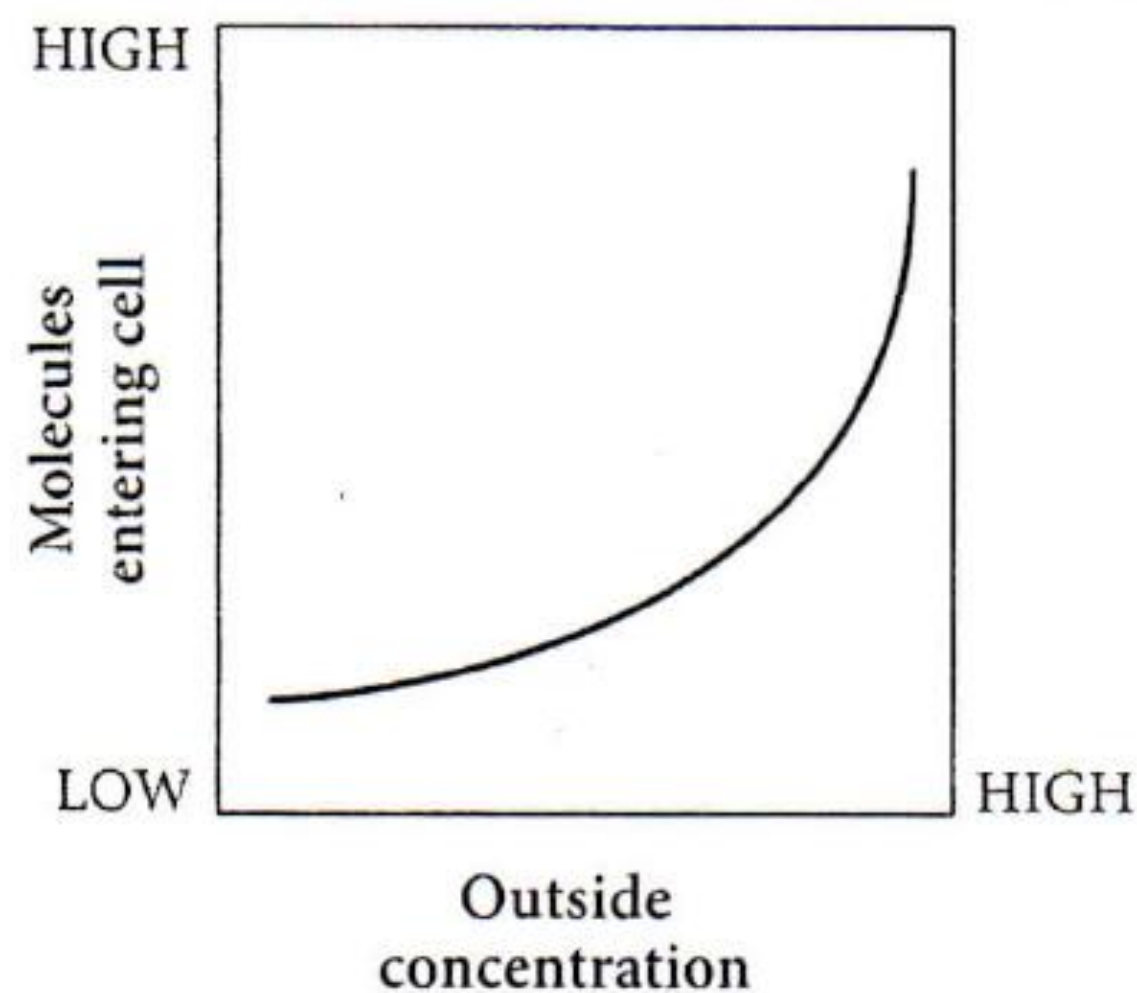
This graph shows that as the concentration of molecules increases outside a cell, more and more molecules enter the cell. These molecules are able to enter the cell because the

- A molecules are polar.
- B cytoplasm is warm.
- C cell membrane is semipermeable.
- D nucleus is regulating movement.

### THINK THROUGH THE QUESTION

Which answer choice explains why molecules can enter a cell?

**Molecule Concentration Outside and Inside a Cell**



14.08

Which of the following pairs incorrectly matches a cell structure with its function?

- A cell membrane: protein synthesis
- B nucleus: information (DNA) storage
- C vacuole: storage
- D chloroplast: energy conversion





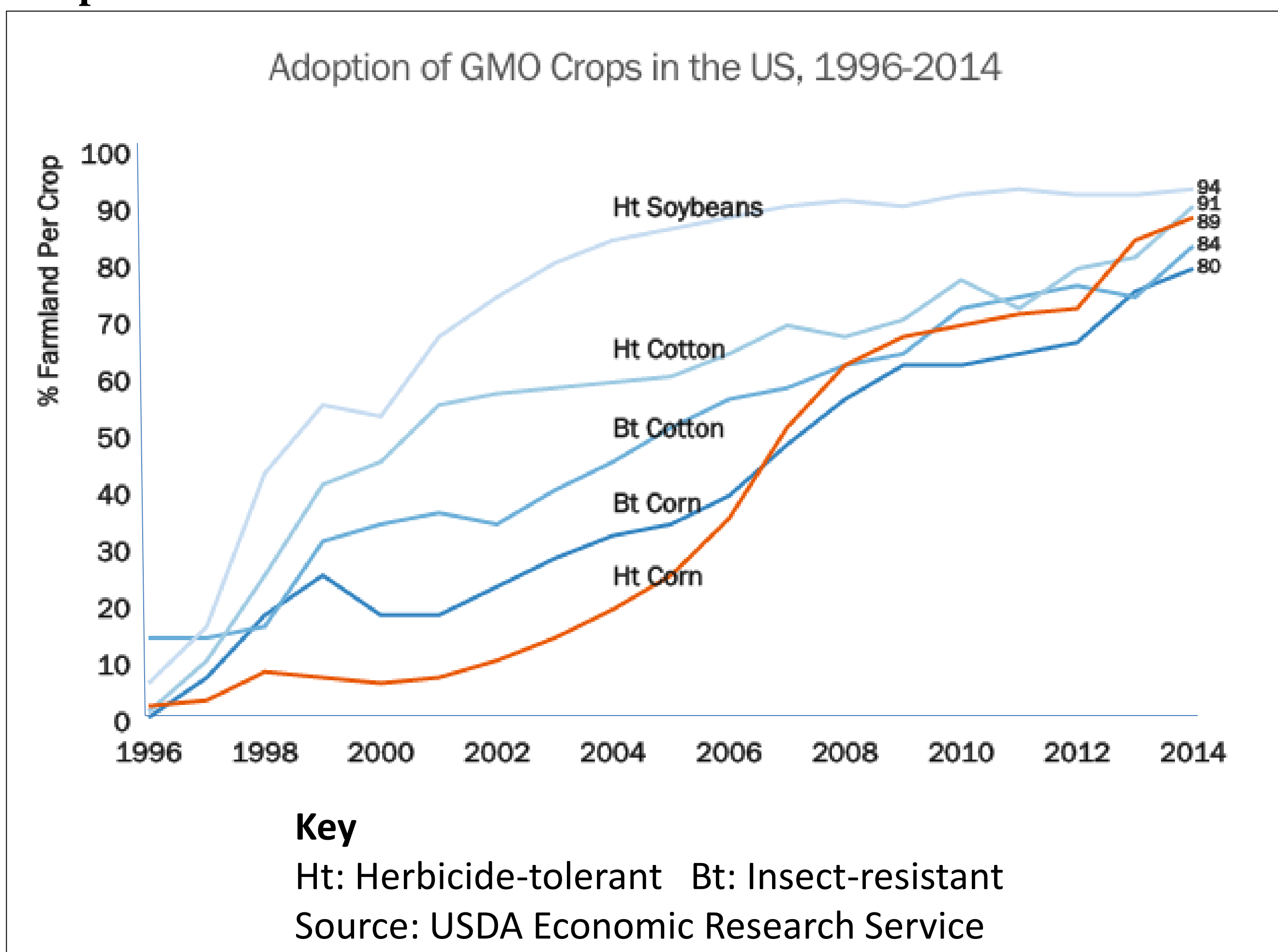
# Topic 15 – Plant Cells

1. Scan the background information and the graphic.
2. Fill-in the blanks of each question based on the text and the graphic.

**Background Information:** Genetically modified food controversies are disputes over the use of foods and other goods derived from genetically modified crops. Genetically modified food is sometimes used instead of conventional crops.

The acronym “GMO” stands for “genetically modified organism.” Disputes over GMOs involve consumers, farmers, and biotechnology companies.

## Graphic



- 15.01 The letters “Ht” stand for \_\_\_\_\_ - \_\_\_\_\_
- 15.02 GMO stands for \_\_\_\_\_
- 15.03 The letters “Bt” stands for \_\_\_\_\_ - \_\_\_\_\_
- 15.04 The time period covered by the graphic is \_\_\_\_\_ thru \_\_\_\_\_



# Topic 15 – Plant Cells

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

15.05

A group of students wants to find out how much carbon dioxide is used by plants during the daytime. What control could be used in this experiment?

- A the amount of water used during the daytime
- B the amount of oxygen released at night
- C the amount of carbon dioxide used at night
- D the amount of oxygen used during the daytime

15.06

Which of the following groups of organisms uses cellular respiration in mitochondria to produce ATP for their energy needs?

- A plants only
- B eukaryotes
- C animals only
- D prokaryotes





# Topic 16 – Prokaryotic & Eukaryotic

1. Scan the paragraphs (text) presented.
2. Fill-in the blank of each sentence based on the text.

## Paragraphs

Prokaryotes are unicellular organisms that lack organelles or other internal membrane-bound structures . They do not have a nucleus. Instead, they have a single chromosome.

One hypothesis is that eukaryotic cells evolved from a symbiotic association of prokaryotes—endosymbiosis. This is well supported by studies of mitochondria and chloroplasts, which are thought to have evolved from bacteria living in large cells.

Prokaryotes are found in the domains of Bacteria and Archaea. Eukaryotes make up the remaining domain. Prokaryotes tend to be much smaller in size than eukaryotic cells. Prokaryotes have no membrane-bound organelles such as a nucleus.

Autotrophic prokaryotes make organic molecules from carbon dioxide. In contrast, heterotrophic prokaryotes obtain carbon from organic compounds.

## Fill in the blanks using the text shown above.

16.01 Prokaryotes are unicellular \_\_\_\_\_ that lack organelles or other internal membrane-bound structures .

16.02 One hypothesis is that eukaryotic cells \_\_\_\_\_ from a symbiotic association of prokaryotes.

16.03 Prokaryotes are found in the domains of Bacteria and Archaea. \_\_\_\_\_ make up the remaining domain.

16.04 Autotrophic prokaryotes make organic molecules from \_\_\_\_\_.





# Topic 16 – Prokaryotic & Eukaryotic

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

16.05

Scientists are testing three antibiotics—A, B, and C—on 50 mice with bacterial infections. Their experimental design is shown above. They conclude that they need to do more testing on antibiotic C because

Set-up for Antibiotic Testing			
Antibiotic	A	B	C
Infected mice tested	30	15	15
% Effectiveness	83%	25%	100%

- A it unexpectedly worked better than A and B.
- B 100 percent of the mice were cured.
- C the sample size was too small.
- D it will likely have the worst side effects.

16.06

Impetigo is a highly contagious skin infection caused by staph or strep bacteria that are normally found on the skin, where they are harmless. This infection is *most* likely to occur when

- A scraped skin provides the bacteria with access to tissues they do not normally contact.
- B the bacteria have been genetically altered by scientists doing research.
- C the infected person did not receive regularly scheduled vaccinations.
- D the bacteria form endospores on the surface of the skin.



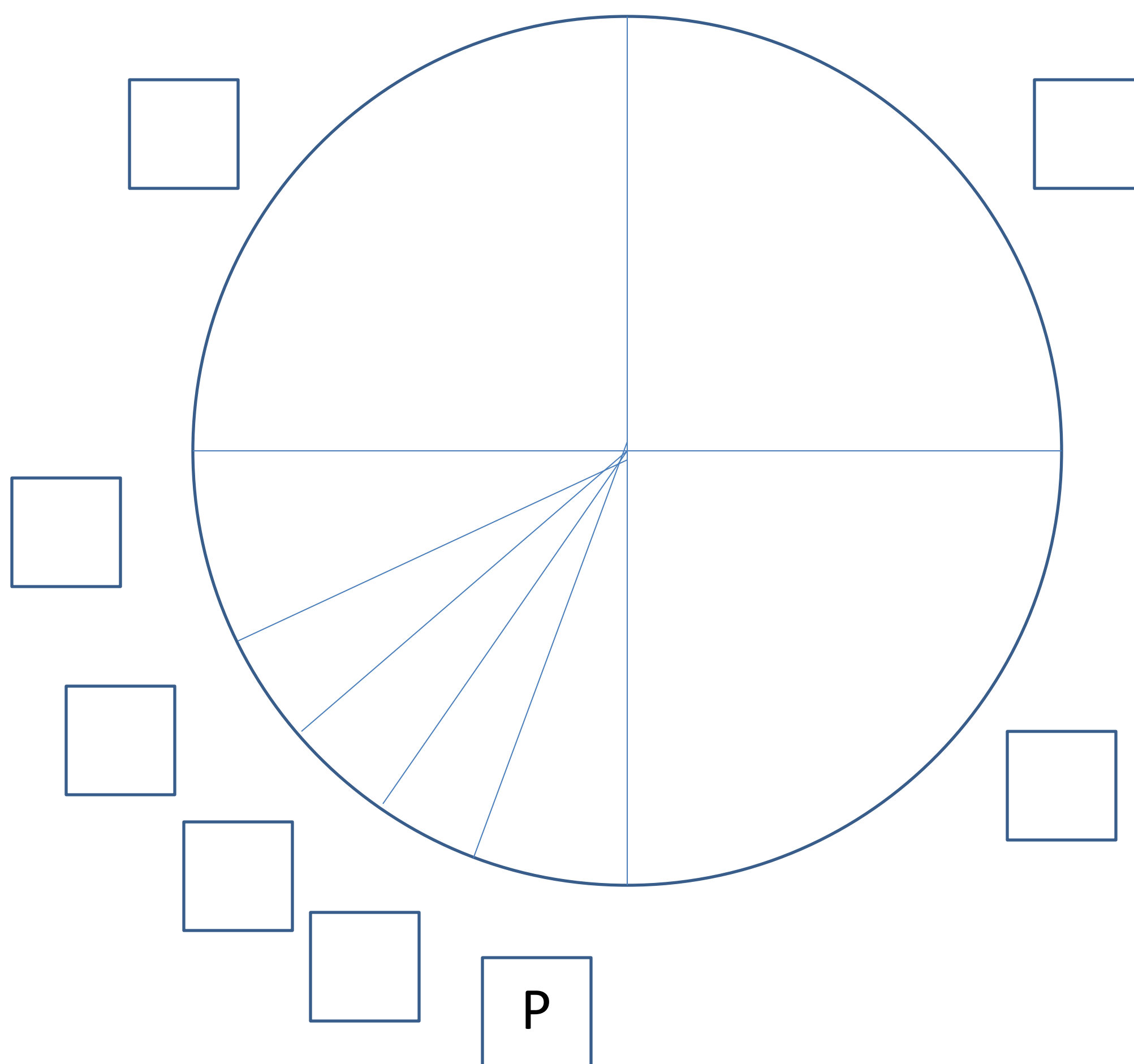


# Topic 17 – Mitosis & Cytokinesis

Based on class reading and discussion of mitosis and Cytokinesis:

1. Select letters/numbers from the list below.
2. Write the letter/number best representing the phase or stage for the cell life cycle. An example is show for “P” which stands for prophase.

17.01



A C G1 G2 M ~~P~~ S T





# Topic 17 – Mitosis & Cytokinesis

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

17.02

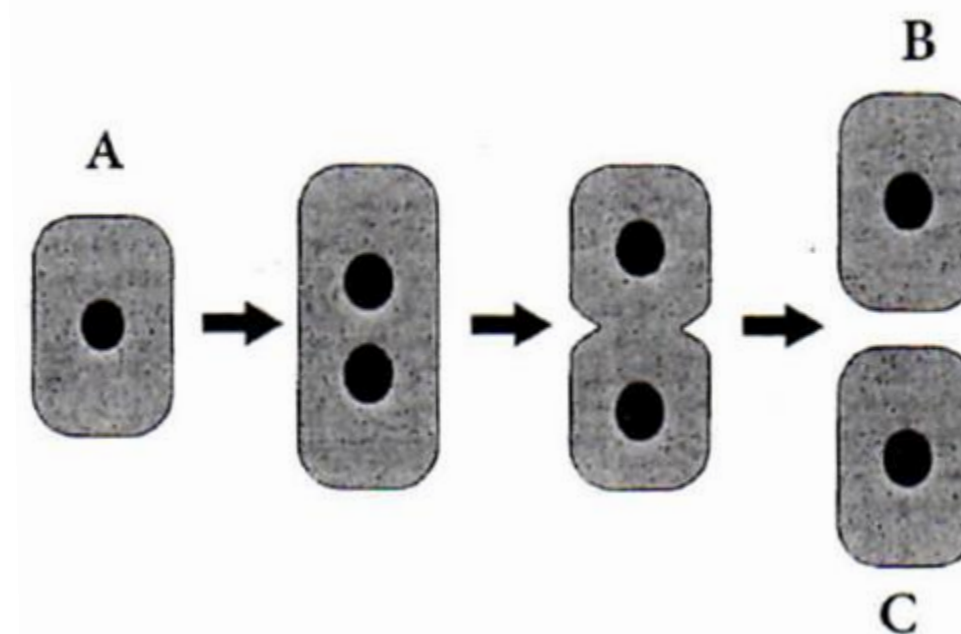
After being scraped or cut, the skin is able to heal. What biological process *best* accounts for the replacement of skin cells?

- A mitosis
- B meiosis
- C asexual reproduction
- D cementation

17.03

In this diagram, cell A is undergoing mitosis. If cell A has 6 chromosomes, how many chromosomes will the resulting cells B and C have?

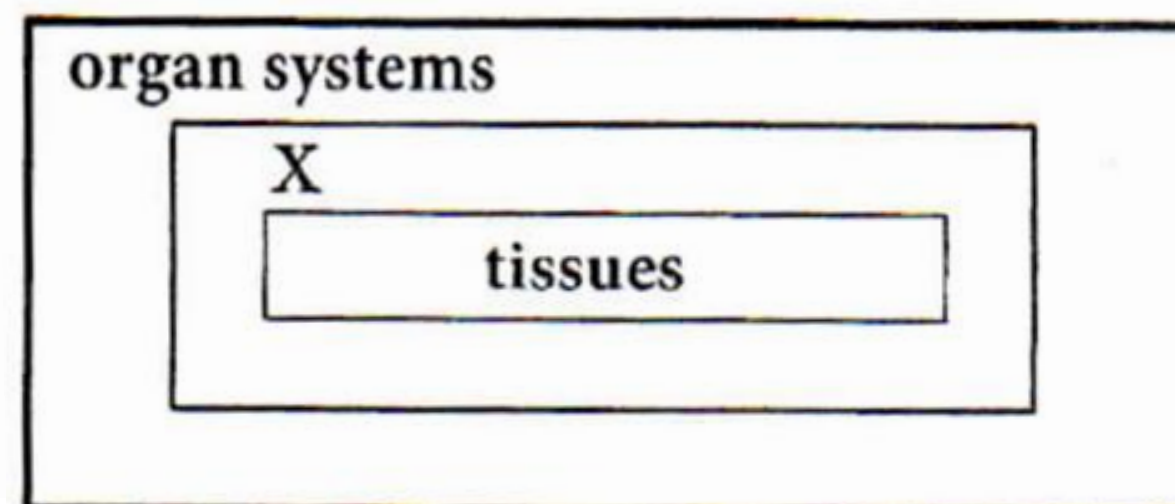
- A none
- B 3 each
- C 6 each
- D 12 each



17.04

This figure represents some levels of structural and functional organization in multicellular organisms. Which term fits in the box marked "X"?

- A cells
- B organelles
- C organs
- D organisms







# Topic 18 – DNA & Heredity

Based on class reading and discussion of DNA & Heredity, fill in the missing letters with A, T, C, or G.

DNA stands for Deoxyribonucleic acid. DNA is a molecule. DNA carries genetic instructions for living organisms. Primary structure consists of a linear sequence of nucleotides that are linked together by phosphodiester bonds. It is this linear sequence of nucleotides that make up the primary structure of DNA or RNA.

## Nitrogenous base

- Adenine
- Guanine
- Cytosine
- Thymine

18.01

Fill in the missing letters with A, T, C, or G.

A	T
—	A
G	—
A	—
A	—
—	G
—	C
G	—
A	—
A	—
C	—
G	—
G	—
C	—
A	—
C	—
—	T
A	—
—	A



# Topic 18 – DNA & Heredity

For each question presented, circle A, B, C, or D.  
Circle only the best response for each question.

18.02

In the past 150 years, the classification of life has changed through the addition and restructuring of kingdoms and domains.

This system is always changing because

- A scientific study keeps producing more data.
- B evolution keeps producing unique organisms.
- C extinctions change evolutionary relationships.
- D humans increase the rate of speciation.

18.03

Scientists isolate this organism from marsh water. Based on this illustration, the organism would *most* likely be classified as a

- A protist.
- B bacterium.
- C plant.
- D fungus.

