

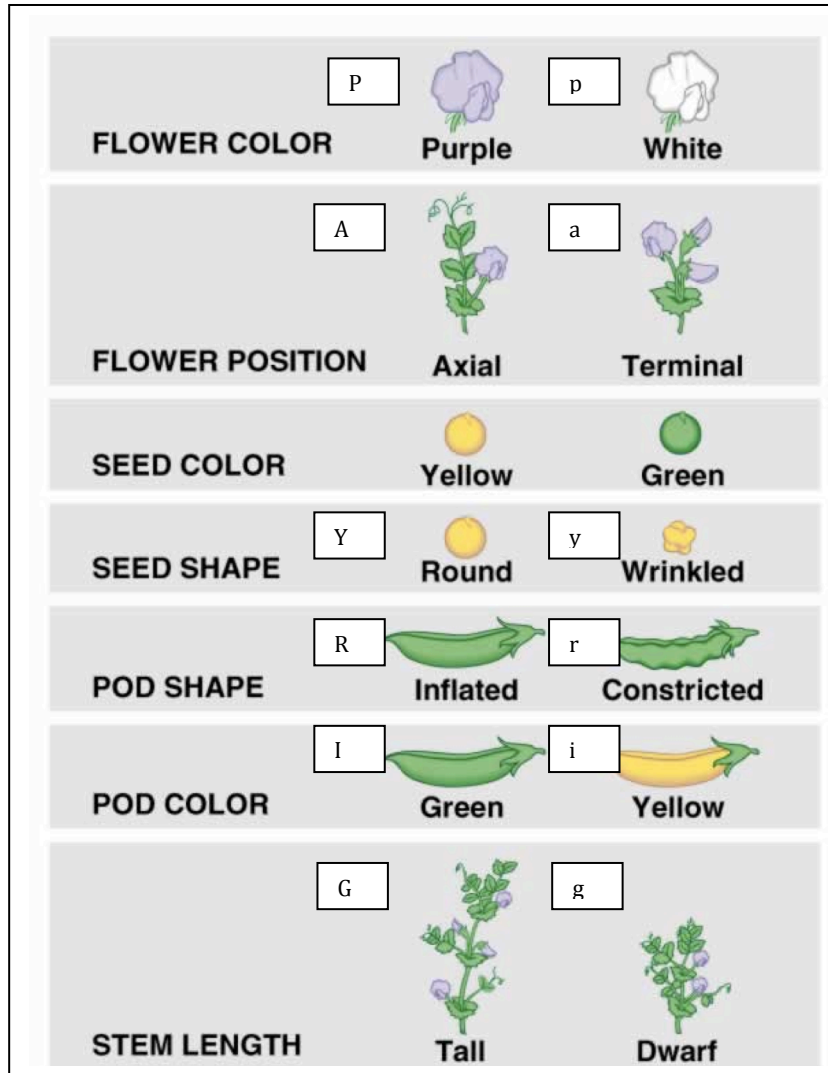
6 Compared to the amount of hereditary information in a human body cell, how much hereditary information is contained in a human sex cell?

- (1) one-quarter the amount
- (2) one-half the amount
- (3) the same amount
- (4) twice the amount

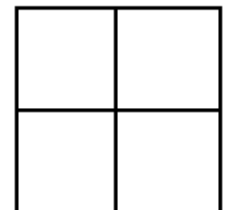
28 In humans, a trait can be determined by one pair or many pairs of

- (1) genes
- (2) microbes
- (3) cells
- (4) organs

Here is a diagram for the following traits. Use this key to help you determine the genotypes and phenotypes of the following problems.

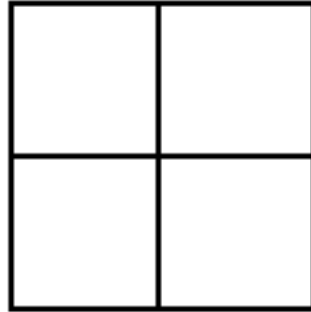


Example: What would the offspring phenotype and genotype probabilities be when a plant with terminal flower position crossed with a plant that was heterozygous for flower position?



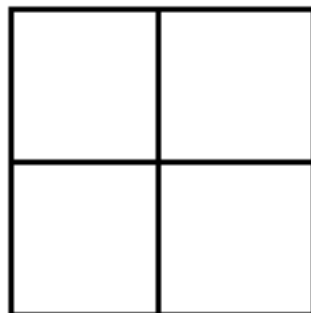
Offspring Genotype	Phenotype (trait)	Frequency	Percent
Aa	Axial	2:4	50%
aa	Terminal	2:4	50%

1. What would the offspring phenotype and genotype probabilities be when a plant with constricted pods crossed with a plant that was **heterozygous** for inflated pods?



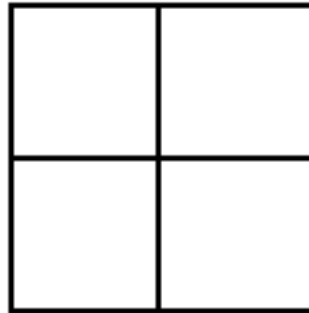
Offspring Genotype	Phenotype (trait)	Frequency	Percent

2. What would the offspring genotype and phenotype probabilities be when a white flowered plant crossed with a plant that was **homozygous** for purple flowers.



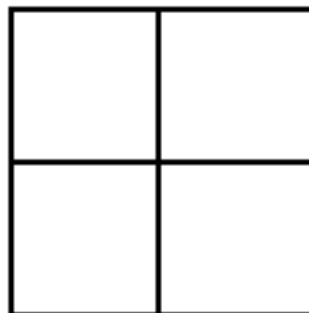
Offspring Genotype	Phenotype (trait)	Frequency	Percent

3. What would the offspring genotype and phenotype probabilities be when a wrinkled seed crossed with another wrinkle seed.



Offspring Genotype	Phenotype (trait)	Frequency	Percent

4. What would the offspring genotype and phenotype probabilities be when two homozygous plants were crossed. One plant was tall and one was short.



Offspring Genotype	Phenotype (trait)	Frequency	Percent

5 Show the genetic makeup of two parent pea plants whose offspring would all have wrinkled seeds. [1]

State Exam Review Questions

59 The Punnett square below shows a cross between a pea plant with green pods ( $GG$ ) and a pea plant with yellow pods ( $gg$ ). All of the offspring have green pods ( $Gg$ ).

	$G$	$G$
$g$	$Gg$	$Gg$
$g$	$Gg$	$Gg$

Explain why the offspring with  $Gg$  genes for pod color look the same as a pea plant with  $GG$  genes for pod color. [1]

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When do organs and organ systems begin to develop in humans?

- (1) before fertilization      (3) during childhood
- (2) before birth      (4) during adulthood

17 Some one-celled organisms can reproduce by the process of

- (1) hormone secretion      (3) fertilization
- (2) metamorphosis      (4) cell division

13 What are genes composed of?

- (1) offspring      (3) cells
- (2) DNA      (4) traits

14 An organism is born with a genetic abnormality not present in any of its ancestors. This abnormality is most likely the result of

- (1) circulation      (3) mutation
- (2) competition      (4) respiration

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18 Which structure is found in a plant cell but not in an animal cell?

- (1) cell wall      (3) cytoplasm
- (2) cell membrane      (4) nucleus

6 Compared to the amount of hereditary information in a human body cell, how much hereditary information is contained in a human sex cell?

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13 Which statement describes a method of sexual reproduction that occurs in plants?

- (1) Stem cuttings are placed in water and grow roots.
- (2) Seeds are produced from the flower of the plant.
- (3) Underground stems from a plant grow into new plants.
- (4) A leaf falls to the soil, develops roots, and grows.

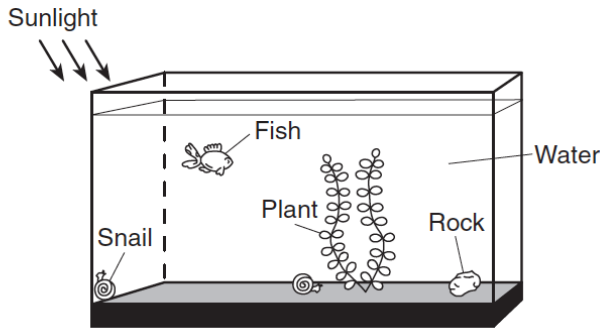
5 Asexually produced offspring are genetically

- (1) identical to the parent
- (2) different from the parent
- (3) different from each other
- (4) formed by two parents

41 Which energy source is considered *nonrenewable*?

- (1) moving water
- (2) fossil fuel
- (3) wind
- (4) biomass

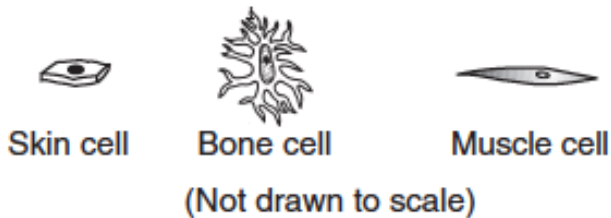
24 The diagram below shows several organisms in a fish tank.



Which item in the tank produces oxygen?

- (1) plant
- (2) water
- (3) snail
- (4) rock

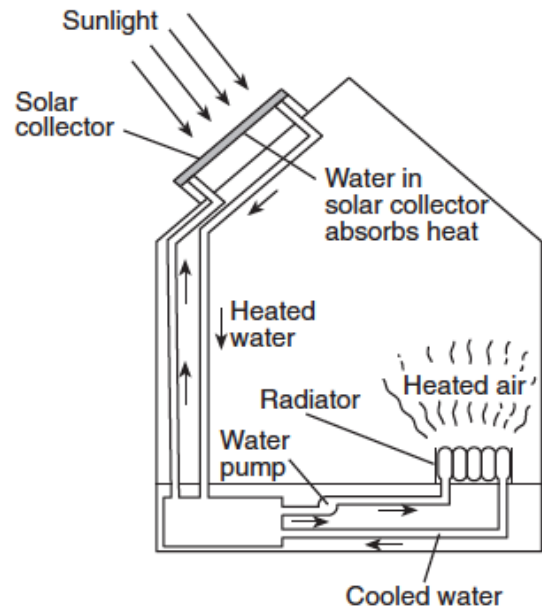
1 Three different human cells are shown below.



Which process occurs in all of these cells?

- (1) metamorphosis
- (2) locomotion
- (3) reproduction
- (4) photosynthesis

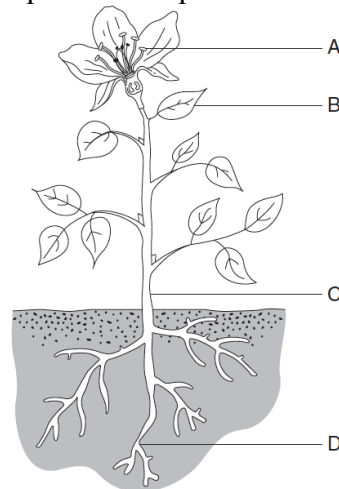
40 The diagram below shows a home with a solar heating system.



What is the original source of energy for this heating system?

- (1) heated water
- (2) heated air
- (3) sunlight
- (4) water pump

Base your answers to questions 10 and 11 on the diagram of a green plant below and on your knowledge of science. Four parts of the plant are labeled A, B, C, and D.



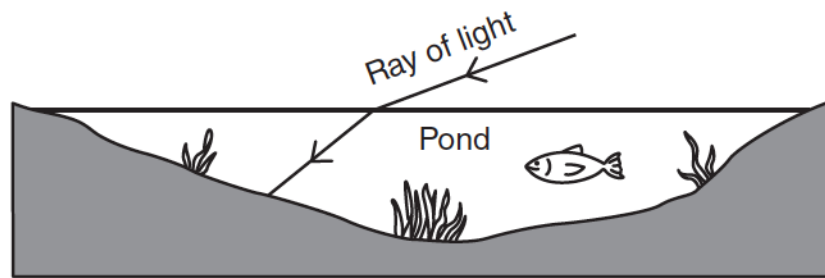
10 Which part of the plant is directly involved in sexual reproduction?

- (1) A
- (2) B
- (3) C
- (4) D

11 In which part of the plant does most photosynthesis occur?

- (1) A
- (3) C

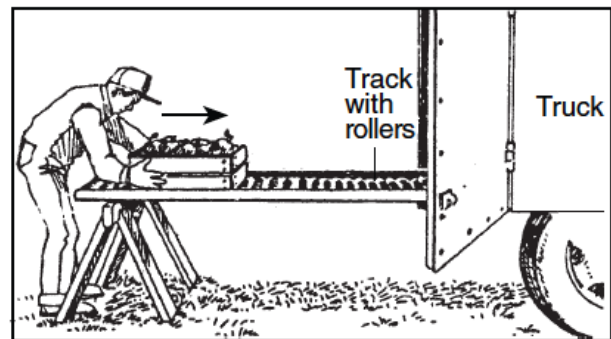
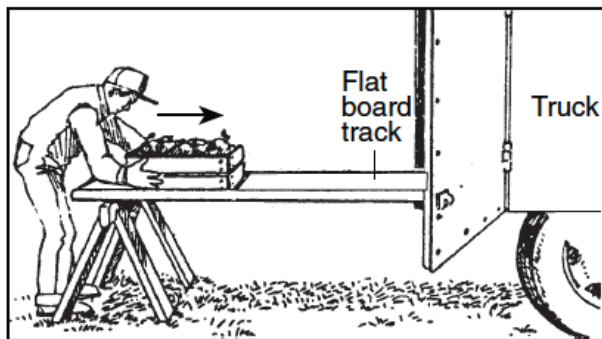
38 The diagram below shows what occurs when a ray of light strikes and enters a pond.



Which property of light is illustrated when the ray enters the pond?

- (1) refraction
- (2) reflection
- (3) absorption
- (4) emission

44 The diagrams below show two ways of loading a box into a truck.



The person using the track with the rollers uses less energy to load the box because the rollers reduce the

- (1) mass of the box
- (2) distance traveled by the box
- (3) force of gravity
- (4) force of friction

31 During which phase change is heat energy absorbed by a substance?

- (1) liquid to gas
- (2) gas to solid
- (3) liquid to solid
- (4) gas to liquid