تجميعة أسئلة القسم الالكتروني وفق الهيكل الوزاري منهج انسباير

المزيد من الملفات بحسب الصف السادس والمادة علوم في الفصل الثالث

UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Multiple Choice Questions

Grade 6 Science
EOT Term 3
2024-2025

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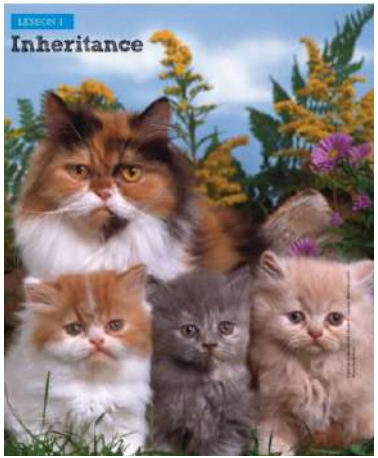
Q1: Recognize that traits are passed through genes from both parents.
Pages: 7, 25(Q2)

ENCOUNTER THE PHENOMENON

Why do some offspring look like their parents, while others do not?

Genes, sections of chromosomes carrying genetic information for specific traits, are passed to offspring from both parents. As a result, offspring often, at least to some extent, look like their parents, although variation occurs among individuals.



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Q1: Recognize that traits are passed through genes from both parents.
Pages: 7, 25(Q2)

ENCOUNTER | Why do some offspring look like their parents, while others do not?
THE PHENOMENON

Words to remember:

Gene: A gene is a section of DNA that has information about a trait

Trait: is distinguishing characteristic or quality of an organism. (Something that makes you special)

Inheritance: is the passing on of traits from one generation to the next. **(heredity)**

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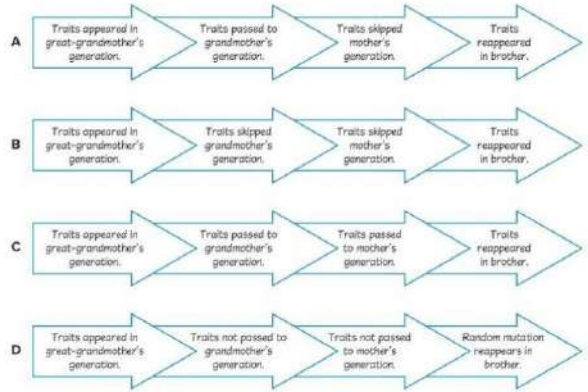
Q1: Recognize that traits are passed through genes from both parents.
Pages: 7, 25(Q2)

Susana visits with four generations of her family. Her great-grandmother shows her an old family photo of Susana's great-aunts and great-uncles when they were children. Susana is surprised to see that one of the great-uncles looks almost exactly like her younger brother does now. They have the same distinctive hairline and eye shape. Her great-grandmother tells her that it is the result of heredity.

2. Which is the best explanation that shows the sequence of inheritance that led to Susana having a brother who has the same hairline and eye shape as her great-uncle?



Answers:
2: A

This shows a reappearing trait in Susana's brother. A **reappearing trait** is a trait that is recessive and skips a generation.

Recessive traits: blocked by the dominant trait (weaker one)

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Q1: Recognize that traits are passed through genes from both parents.

Practice Questions:

1) Which of the following is NOT an example of a trait?

- **A)** eye color
- **B)** ear shape
- **C)** species
- **D)** body height

Correct Answer

C) species

4) The study of _____ is called genetics.

- **A)** heredity
- **B)** dominance
- **C)** pea plants
- **D)** mutations

Correct Answer

A) heredity

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Q1: Recognize that traits are passed through genes from both parents.

Practice Questions:

Which of the following best explains how a child gets traits like eye color or hair type?

A. The child chooses these traits before birth
B. Traits are passed down from both the mother and the father through genes
C. The child develops traits by copying their friends
D. Traits come from what the child eats

Correct Answer: B

A child has curly hair, even though one parent has straight hair and the other has curly hair. What does this suggest about how traits are inherited?

A. Curly hair is always dominant and will show up no matter what
B. Traits are inherited only from the parent with curly hair
C. Traits are inherited from both parents, and some traits may be dominant over others
D. The environment changes the child's hair type after birth

Correct Answer: C

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Q2: Understand that different forms of a gene (allele) cause differences in traits.
Page 17

COLLECT EVIDENCE

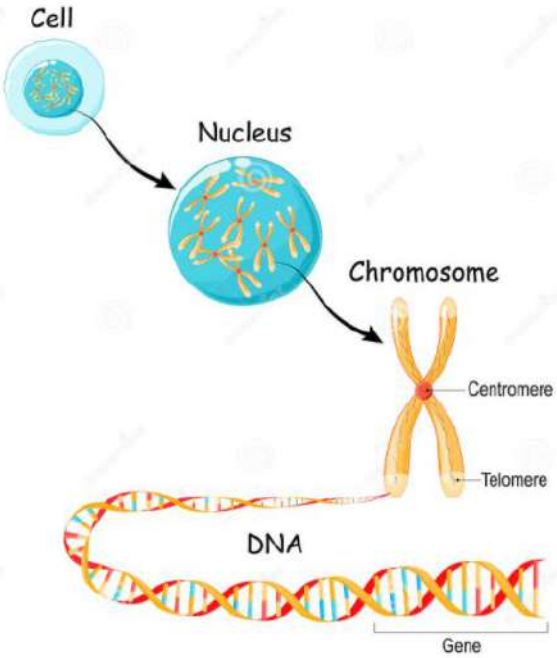
What factors control traits, such as those of the kittens at the beginning of the lesson? Record your evidence (B) in the chart at the beginning of the lesson.

B. Answers may vary. Sample answer: Factors that control traits are contained in chromosomes in the cell nucleus. Offspring receive one chromosome from each parent. A gene is a section on a chromosome that has genetic information for one trait. Alleles are different forms of a gene. The two alleles controlling the phenotype of a trait are the trait's genotype. Evidence that explains these factors was seen in the Lab *Beetle Genes*, which used a model to show how different alleles from each parent were inherited by offspring, resulting in different genotypes and traits, or phenotypes.

Explanation for this follows on page 7, 8 and 9

Q2: Understand that different forms of a gene (allele) cause differences in traits.

Page 17



The nucleus contains our genetic information, also known as DNA.

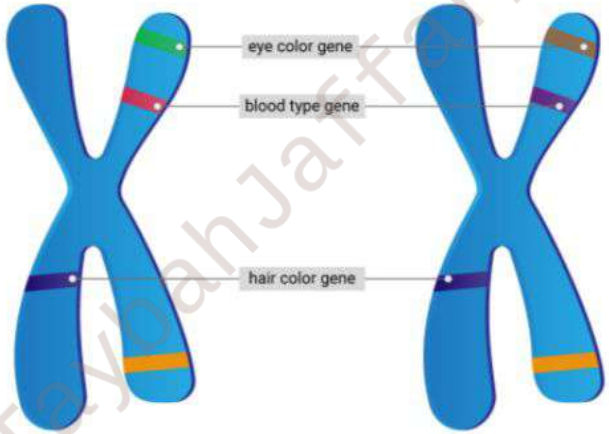
DNA is found inside chromosomes.

Chromosomes are found in pairs. One from each parent. They have the information about the traits.

Q2: Understand that different forms of a gene (allele) cause differences in traits.
Page 17

A gene is a section of DNA that has information about a trait

A gene can take two or more forms, called alleles.



Q2: Understand that different forms of a gene (allele) cause differences in traits.
Page 17

REMEMBER:

A genotype is **an individual's collection of genes**. It is represented by Capital and small letters. The genotype can be dominant or recessive.

Dominant: blocks another genetic factor
(The stronger gene)

Recessive: genetic factor that is blocked
(The weaker gene)

A phenotype is **an individual's observable traits, such as height, eye color, and blood type**.

Q2: Understand that different forms of a gene (allele) cause differences in traits.
Page 17

6. Determine the possible genotype(s) for each phenotype. Record your responses in the table. Explain your reasoning.

BB and *Bb* denote green bodies, while *bb* denotes red. *SS* and *Ss* denote round spots, while *ss* denotes no spots. *WW* and *Ww* denote short wings, while *ww* denotes long wings.

Remember to always read the question to identify which phenotype is represented by the genotype.

Homozygous Dominant:
Always 2 capital letters, the alleles are the same.

Homozygous Recessive:
2 small letters, the alleles are the same but for the weaker gene.

Heterozygous:
Alleles are different, so 1 capital and 1 small letter. The Phenotype will be what is represented by the capital letter.

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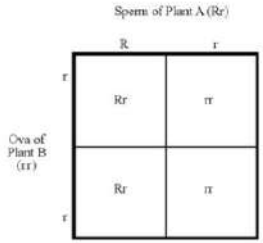
Q2: Understand that different forms of a gene (allele) cause differences in traits.

Practice Questions:

6) A florist has one kind of plant that usually has red flowers (the dominant trait), but sometimes has white flowers (the recessive trait). If she crosses plants A and B as shown here, 50% of the offspring will have red flowers.



- ○ True
- ○ False

Correct Answer

True

2) Bird A has the genotype *ll* for bill length, and Bird B is *LL*. The bills of their offspring would be:

- ○ **A)** long in 100% of the offspring.
- ○ **B)** short in 100% of the offspring.
- ○ **C)** long in 50% of the offspring.
- ○ **D)** short in 75% of the offspring.

Correct Answer

A) long in 100% of the offspring.

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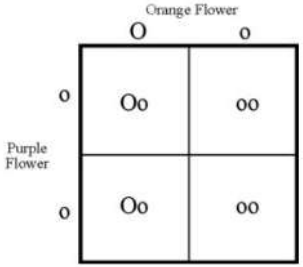
Q2: Understand that different forms of a gene (allele) cause differences in traits.

Practice Questions:

7) A heterozygous orange-flowered plant is crossed with a homozygous purple-flowered plant. If orange is a dominant allele and purple is recessive, what color ratio will the flowers of the offspring plants have?



- **A)** 1 purple: 3 orange
- **B)** 4 purple: 0 orange
- **C)** 2 purple: 2 orange
- **D)** 0 purple: 4 orange

Correct Answer

C) 2 purple: 2 orange

A gene controls flower color in a plant. One allele causes red flowers, and another allele causes white flowers. If a plant inherits one red allele and one white allele, and the flowers are red, what does this tell us about the red allele?

A. The red allele is weaker than the white allele

B. The red allele is dominant over the white allele

C. The red allele is recessive

D. The red allele was not passed on to the plant

Correct Answer: B

Page 22: Pedigree Models

A model that shows an inherited traits is called a pedigree model.

It can help determine the genotypes of family members.

The offspring (kids) will always get one allele from the mother and one allele from the father.

Remember:

If both parents have the trait and IT SHOWS it is a DOMINANT TRAIT.

If both parents have the trait and IT DOES NOT SHOW it is a RECESSIVE TRAIT.

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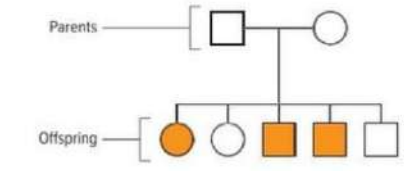
Q3: Read and interpret pedigrees to find inherited traits in families.
Page 22, 25 (Q1)

Attached lobe



Recessive phenotype
- Female with attached lobes
- Male with attached lobes

Dominant phenotype
- Female with unattached lobes
- Male with unattached lobes

Unattached lobe

THREE-DIMENSIONAL THINKING

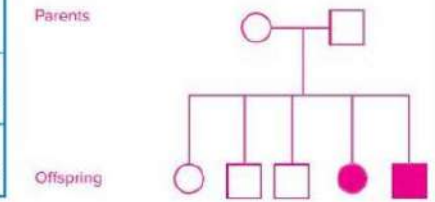
If the genotype of the offspring with attached lobes is *uu*, what is the genotype of the parents? **Explain** your answer.

The genotype of both parents is *Uu*. In order for any offspring to show the recessive phenotype, each parent must have one recessive allele to contribute.

1. **Model** a pedigree chart that reflects the following information: Two parents have five children. Both of the parents have curly hair. Two boys and one girl have curly hair; the other two, one boy and one girl, have straight hair. Before you draw your chart, choose a color for straight and curly hair, and indicate it in the table. After you draw your chart, determine which trait is dominant and label the proper columns in the table.

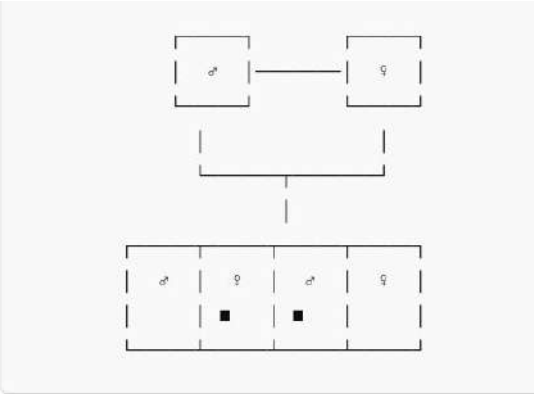
Answers may vary. Sample answer:

dominant phenotype	recessive phenotype
Female with curly hair	Female with straight hair
Male with curly hair	Male with straight hair



Q3: Read and interpret pedigrees to find inherited traits in families.

Practice Questions:



Key:

- ♂ = male
- ♀ = female
- ■ = has the trait
- Blank shape = does **not** have the trait

Question:

Which of the following is most likely true about how this trait is inherited?

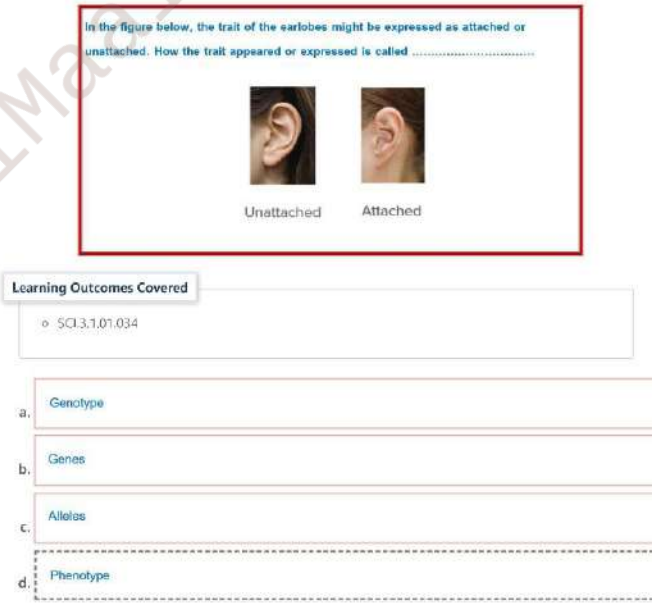
A. The trait skips generations, so it's not inherited

B. The trait is likely recessive because the parents don't have it, but some children do

C. The trait is only found in females

D. The trait is caused by the environment, not genes

Correct Answer: B



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Q4: Understand that different forms of a gene (alleles) cause differences in traits.
Pages: 14 and 25 (Q3)

Dominant trait: blocks another genetic factor
(The stronger gene)

Recessive trait: genetic factor that is blocked
(The weaker gene)

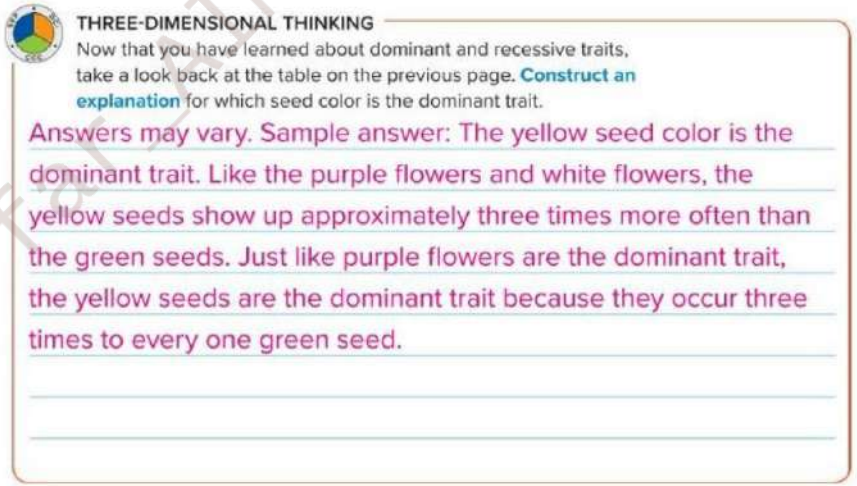
Mendel's experiment results:

Yellow seed color and purple flowers: Dominant trait

Green seed color and white flowers: Recessive trait

Dominant traits appear 3 times more.

For every 3 purple flowers or yellow seeds, only 1 white flower or green seed appeared.



THREE-DIMENSIONAL THINKING

Now that you have learned about dominant and recessive traits, take a look back at the table on the previous page. **Construct an explanation** for which seed color is the dominant trait.

Answers may vary. Sample answer: The yellow seed color is the dominant trait. Like the purple flowers and white flowers, the yellow seeds show up approximately three times more often than the green seeds. Just like purple flowers are the dominant trait, the yellow seeds are the dominant trait because they occur three times to every one green seed.

مؤسسة الإمارات للتعليم المدرسي
EMIRATES SCHOOLS ESTABLISHMENT

Q4: Understand that different forms of a gene (alleles) cause differences in traits.
Pages: 14 and 25 (Q3)

3. When Mendel crossed a true-breeding plant with purple flowers and a true-breeding plant with white flowers, ALL offspring had purple flowers. The best explanation for this data is that the white flowers are

A dominant.

B heterozygous.

C recessive.

D neutral.

Answer: C

The white was blocked by the purple so it is the weaker gene.

مؤسسة الإمارات للتعليم المدرسي
EMIRATES SCHOOLS ESTABLISHMENT

Q4: Understand that different forms of a gene (alleles) cause differences in traits.

Practice Questions:

What causes individuals to have different traits, like eye color or hair texture?

A. Different foods they eat
B. Different forms of a gene called alleles
C. The number of bones in their body
D. The weather they live in

Correct Answer: B

A plant has two alleles for flower color: one for red (R) and one for white (r). If red is dominant and white is recessive, what flower color will a plant with the alleles Rr most likely have?

A. White
B. Pink
C. Red
D. Both red and white petals

Correct Answer: C

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Q5: Understand that offspring from sexual reproduction have differences (variation).
Pages: 35 and 39 (Q1 and 2)

COLLECT EVIDENCE

How can two organisms produce offspring that are not identical to themselves, unlike the sea star at the beginning of the lesson? Record your evidence (B) in the chart at the beginning of the lesson.

B. Answers may vary. Sample answer: Two organisms produce offspring that are not identical to themselves through sexual reproduction. In sexual reproduction, the offspring receives genetic material from each parent. Evidence of this was seen in the Lab *Modeling Offspring*, where modeling sexual reproduction showed how different alleles were inherited from each parent.

Sexual Reproduction:

- Needs two parent organisms
- Male: Sperm cell
- Female: Egg cell
- Each cell contains genetic information that will be passed onto the offspring.
- One allele from each parent is inherited in new offspring.

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Q5: Understand that offspring from sexual reproduction have differences (variation).
Pages: 35 and 39 (Q2)

2. A tree produces seeds in pods when wind-borne pollen from another tree of the same species reaches the flowers. Each seed contains genetic information so the seed can grow into an adult tree. Which do you predict would be the effect of this process?

   A The tree produces a large number of genetically diverse offspring.

   B The tree produces a large number of genetically identical offspring.

   C The tree produces a small number of offspring that are identical to the female parent.

   D The tree produces a small number of offspring that are identical to the male parent.

Answer: A

Sexual reproduction in plants using the wind to move the seeds will result in genetic variation (different) offspring.

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Q5: Understand that offspring from sexual reproduction have differences (variation).

Practice Questions:

Which of the following best explains why brothers and sisters from the same parents can look different from each other?

A. They grow up in different environments
B. They inherit different combinations of genes from their parents
C. They don't eat the same foods
D. Their teachers treat them differently

Correct Answer: B

Which of the following best explains why brothers and sisters from the same parents can look different from each other?

A. They grow up in different environments
B. They inherit different combinations of genes from their parents
C. They don't eat the same foods
D. Their teachers treat them differently

Correct Answer: B

Which of the following statements about sexual reproduction is TRUE?

A. Offspring are identical to one of their parents
B. Sexual reproduction produces clones of the parents
C. Variation in offspring results from combining genetic material from two parents
D. All offspring from sexual reproduction look exactly the same

Correct Answer: C

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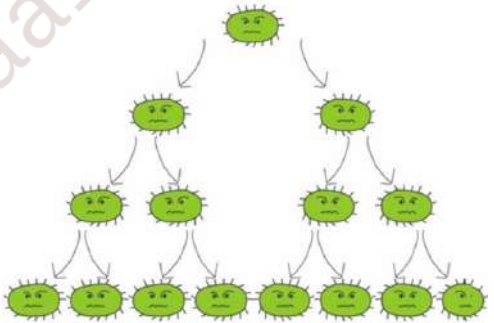
Q6: Describe how asexual reproduction in plants makes new plants without seeds.
Page 29 and Page 32 (Q1 and Q2)

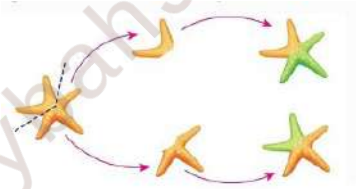
Asexual reproduction:

Only one parent organism, genetically identical.
"Copy, Paste"



Starfish can reproduce from being cut up.

This is an example of **regeneration**- offspring (kid) grows from a piece of its parent



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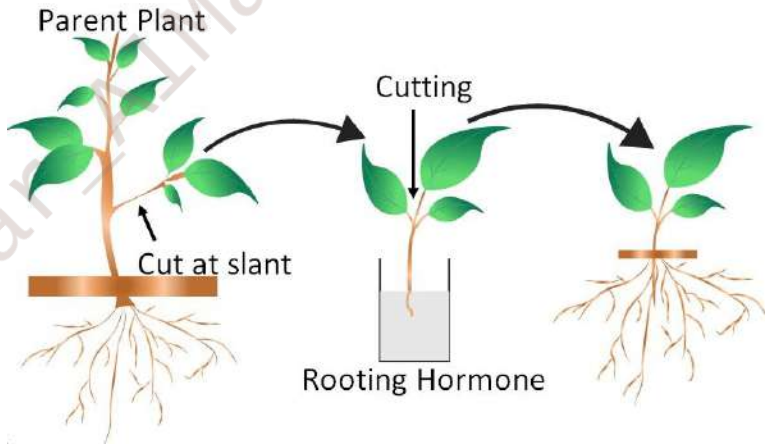
Q6: Describe how asexual reproduction in plants makes new plants without seeds.
Page 29 and Page 32 (Q1 and Q2)

Some plants can be grown from a leaf, stem or other part of the plant, this is called **Vegetative reproduction**.



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Q6: Describe how asexual reproduction in plants makes new plants without seeds.
Page 29 and Page 32 (Q1 and Q2)

INVESTIGATION

Plant Progeny

Observe two plants—a seed potato and a coleus stem—in glasses of water. Look at photos of the plants when they were first placed in water. Draw a detailed diagram of each of the glasses in your Science Notebook. Observe the plants a week after placement in the water and write down your observations in your Science Notebook.

1. How did the potato and the coleus plant change after one week?

Students should observe the changes that occurred with the plants. The two plants should have outgrowths.

2. How do you think that this relates to the sea stars you heard about in the introduction to this lesson?

Answers may vary. Sample answer: Both were able to make copies of themselves.

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Q6: Describe how asexual reproduction in plants makes new plants without seeds.

Practice Questions:

4) In _____, an offspring grows from a piece of its parent.

- **A)** fission
- **B)** budding
- **C)** regeneration
- **D)** sexual reproduction

Correct Answer

C) regeneration

Which of the following is an example of asexual reproduction in plants?

A. A flower making seeds after being pollinated
B. A bee spreading pollen from one flower to another
C. A strawberry plant growing new plants from runners
D. A tree dropping seeds on the ground

Correct Answer: C

How does asexual reproduction differ from sexual reproduction in plants?

A. Asexual reproduction uses seeds, while sexual reproduction does not
B. Asexual reproduction requires two plants, while sexual reproduction needs only one
C. Asexual reproduction produces identical offspring without seeds, while sexual reproduction creates varied offspring using seeds
D. Asexual reproduction happens only in animals **Correct Answer: C**

Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

A behavior is the way an organism reacts to its environment or other organisms.

A Courtship behavior is how animals attract a mate in order for reproduction to occur.

Examples of Courtship behavior are:

- Physical strength-fighting
- Showing ability- building nests
- Mating sounds
- Beauty
- Pheromones
- Bringing gifts

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Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

Behaviour: Physical fighting and aggression

Example:

- Deer
- Peacocks show off their feathers
- Male frigate birds inflate their throat sacks

Behavior: Releasing pheromones
(releasing special chemicals that smell)

Examples:

- Female gypsy moth releases a chemical only male can smell for up to 6 miles away.

Behavior: Mating songs

Example:

- Frogs and birds

Behavior: Gifting Gifts

Example:

- Some birds bring food to the females

Behavior: Showing strength/abilities

Example:

- Fiddler crab shows off his big claw
- Bowerbirds build nests.

Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

Animals go through certain behaviors to protect their young. By protecting their young they ensure that they will grow to become adult animals and continue the reproductive process.

Some protective behaviors include:

- Herding - animals keep offspring close by to the mothers
- Circling - animals form circles around the offspring
- Building nests or dens- protective structures

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Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

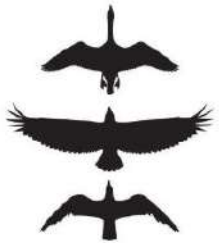
INVESTIGATION

Staying Safe

When goslings, or baby geese, see a bird in the air that has a different wingspan or shape than the parent goose, they duck down.

1. Look at the images of the three birds in flight. Describe the differences between each silhouette.

Answers may vary. Sample answer: The wingspans are different shapes and lengths. The necks and the beaks are also different.



2. Choose at least two characteristics that are different for each bird.

Anwers may vary. Sample answer: The lengths of the necks and the wingspans are different for each bird.

3. How could recognizing differences help a gosling survive?

Answers may vary. Sample answer: The gosling would duck upon seeing a predatory bird, thus becoming less visible to the predator.

Page 52:

Animals need behaviors to stay alive, these behaviors are either innate (born knowing them) or learned (have to be taught).

Birds teach their young to identify the difference between different shapes so that they can identify predators.

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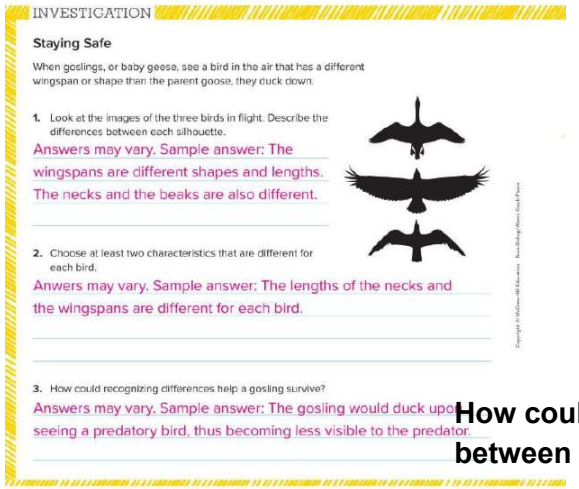
Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)



INVESTIGATION

Staying Safe

When goslings, or baby geese, see a bird in the air that has a different wingspan or shape than the parent goose, they duck down.

1. Look at the images of the three birds in flight. Describe the differences between each silhouette.

Answers may vary. Sample answer: The wingspans are different shapes and lengths. The necks and the beaks are also different.

2. Choose at least two characteristics that are different for each bird.

Anwers may vary. Sample answer: The lengths of the necks and the wingspans are different for each bird.

3. How could recognizing differences help a gosling survive?

Answers may vary. Sample answer: The gosling would duck upon seeing a predatory bird, thus becoming less visible to the predator.

What is one key difference you can observe between the bird silhouettes in the image?

A. They all have the same wing shape
B. Their wingspans and neck lengths are different
C. They are all flying in different directions
D. Their legs are clearly visible

Correct Answer: B

How could recognizing the differences between birds help a gosling survive?

A. It helps the gosling fly faster
B. It teaches the gosling how to build a nest
C. It helps the gosling identify a predator and hide
D. It allows the gosling to find more food

Correct Answer: C

Which two features are mentioned as different among the birds in the image?

A. Eye color and tail feathers
B. Size of feet and body color
C. Neck length and wingspan
D. Beak color and height

Correct Answer: C

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Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

COLLECT EVIDENCE

How are young animals, such as bird of paradise chicks, protected? Record your evidence (B) in the chart at the beginning of the lesson.

B. Answers may vary. Sample answer: Young animals are protected by instinctive knowledge and behaviors, such as to hide from predators, a behavior seen in goslings in the Investigation *Staying Safe*, and by nurturing behaviors of their parents, such as building nests, herding, or forming a protective circle. Evidence of how a nest can keep young safe was seen in the Lab *Build a Nest*.

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Q7: Identify behaviors animals use to attract mates and care for their young.
Pages: 58, 52 (Q1-3)

COLLECT EVIDENCE

How are young animals, such as bird of paradise chicks, protected? Record your evidence (B) in the chart at the beginning of the lesson.

Which of the following is a behavior that helps protect young animals, as described in the passage?

A. Building dams to catch fish
B. Hiding from predators and being cared for by parents
C. Learning to talk to humans
D. Traveling alone to avoid danger

Correct Answer: B

Which statement best explains how parental behavior helps protect young animals?

A. Parents teach their young how to dance to distract predators
B. Parents sing loudly to scare predators away
C. Parents build nests, herd their young, or form protective circles to keep them safe
D. Parents leave their young to help them become more independent

Correct Answer: C

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Q7: Identify behaviors animals use to attract mates and care for their young.

Practice Questions:

1) Of the following, which is NOT a courtship behavior?

- ○ **A)** birds singing
- ○ **B)** fireflies lighting up
- ○ **C)** frogs croaking
- ○ **D)** dogs digging

Correct Answer

D) dogs digging

2) Animal communication includes _____.

- ○ **A)** courtship behavior
- ○ **B)** aggression
- ○ **C)** pheromones
- ○ **D)** all of the above

Correct Answer

D) all of the above

4) Which animal behavior attracts mates by competing with members of the same species?

- ○ **A)** aggression
- ○ **B)** submission
- ○ **C)** territory
- ○ **D)** courtship

Correct Answer

D) courtship

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Practice Questions:

Which of the following is a way animals attract a mate?

A. Sleeping during the day
B. Making sounds or showing bright colors
C. Hiding from other animals
D. Eating food quickly

Correct Answer: B

Why do some birds build fancy nests or perform dances during mating season?

A. To find food for the winter
B. To protect themselves from predators
C. To attract a mate and show they are strong or healthy
D. To play with their young

Correct Answer: C

Which pair of behaviors best shows how animals attract mates and care for their young?

A. A lion roaring and hunting for food
B. A peacock displaying its feathers and a penguin feeding its chick
C. A bear hibernating and a frog jumping
D. A rabbit running fast and a turtle hiding in its shell

Correct Answer: B

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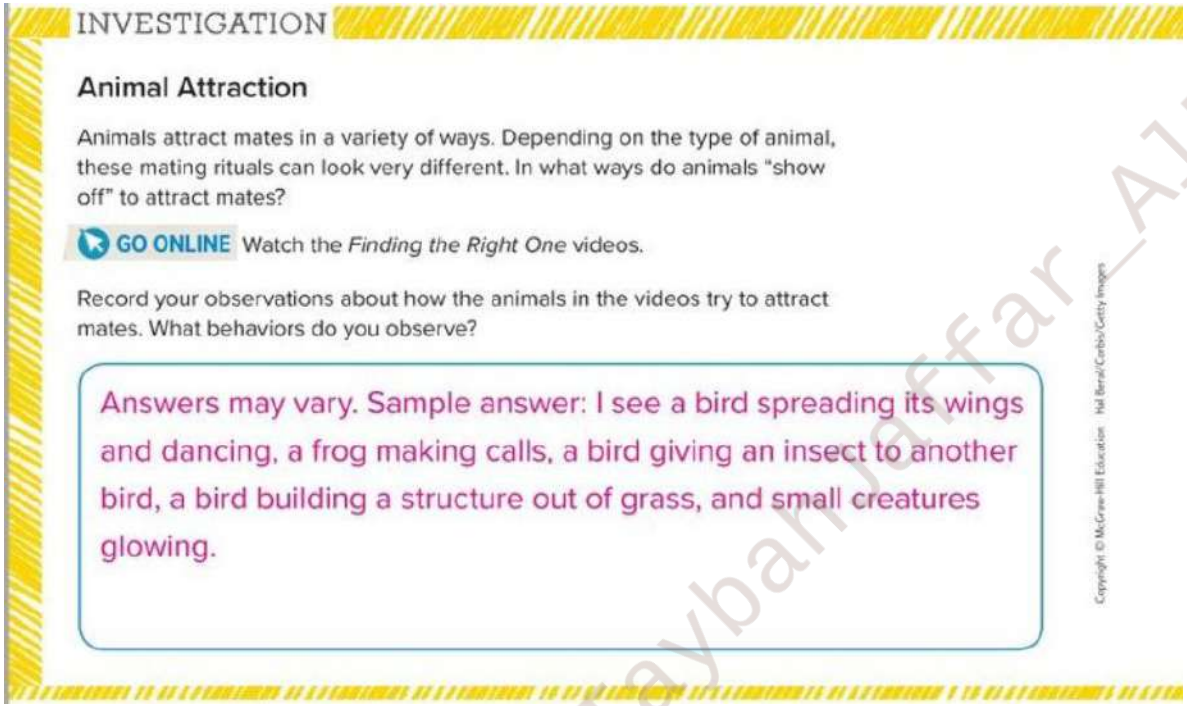
Q8: Explain how these behaviors help these animals reproduce and keep their young safe.
Pages: 46 and 63 (Q2)



INVESTIGATION

Animal Attraction

Animals attract mates in a variety of ways. Depending on the type of animal, these mating rituals can look very different. In what ways do animals "show off" to attract mates?

GO ONLINE Watch the *Finding the Right One* videos.

Record your observations about how the animals in the videos try to attract mates. What behaviors do you observe?

Answers may vary. Sample answer: I see a bird spreading its wings and dancing, a frog making calls, a bird giving an insect to another bird, a bird building a structure out of grass, and small creatures glowing.

A behavior is the way an organism reacts to its environment or other organisms.

A Courtship behavior is how animals attract a mate in order for reproduction to occur.

Examples of Courtship behavior are:

- Physical strength-fighting
- Showing ability- building nests
- Mating sounds
- Beauty
- Pheromones
- Bringing gifts

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Q8: Explain how these behaviors help these animals reproduce and keep their young safe.
Pages: 46 and 63 (Q2)

Three-Dimensional Thinking

In order to attract a mate, male peacocks fan out their colorful feathers and dance. Females tend to choose males that have larger displays of feathers and feathers with more eyespots. The peahen then builds her nest by scraping a hole in the ground in a hidden area. Once the chicks hatch, the peahen stays close to them, teaching them what foods to eat and defending them from predators.

2. Which of the following is a courtship behavior that increases the probability of successful reproduction for the peacock?

   A fanning feathers
   B nest building
   C protecting from predators
   D all of the above

Answer: A

By fanning feathers the Peacock is displaying its beauty which would attract the female and increase chances of reproduction.

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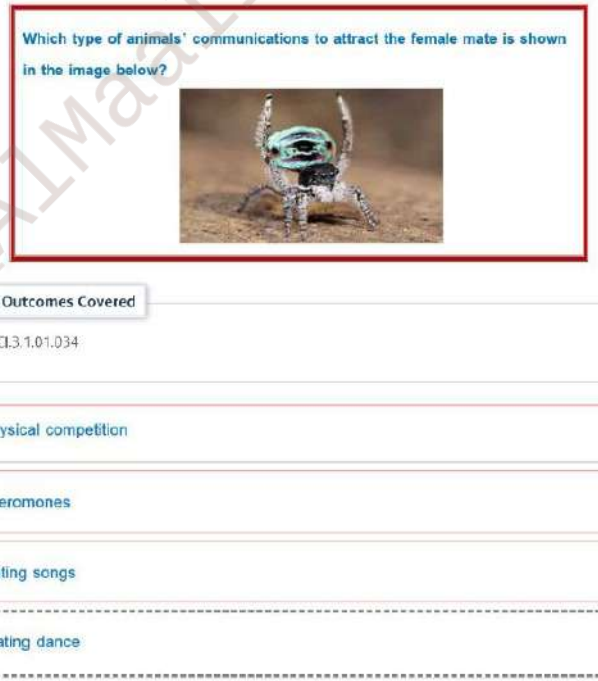
Q8: Explain how these behaviors help these animals reproduce and keep their young safe.

Practice Questions:

How can courtship behaviors help animals keep their young safe?

A. By helping them migrate to warmer places
B. By choosing healthy and strong mates who can help care for offspring
C. By teaching their young how to build nests
D. By scaring away predators

Correct Answer: B



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Q8: Explain how these behaviors help these animals reproduce and keep their young safe.

Practice Questions:

Which of the following best explains how courtship behaviors affect both reproduction and survival of offspring?

A. Courtship behaviors entertain the group and increase social bonding
B. Courtship behaviors help animals find the closest partner to reduce travel time
C. Courtship behaviors allow animals to select strong mates, increasing the chance of healthy offspring and effective parental care
D. Courtship behaviors keep animals hidden from predators during mating season

Correct Answer: C

7) The mating season for white-tailed deer is just two to three months long. Male deer grow antlers before each breeding season. They use their antlers to fight each other to establish dominance in bachelor herds and earn the right to mate with certain females. Scientists claim that this aggressive behavior increases the chances of successful reproduction for the entire deer population. Which statement best supports this claim?

- **A)** Healthier male deer are able to grow larger antlers.
- **B)** Healthier males are better able to protect their young.
- **C)** This behavior extends the length of the mating season.
- **D)** This behavior gives healthier males a better chance to mate.

Correct Answer

D) This behavior gives healthier males a better chance to mate.

8) Which behavior, carried out by horses, elephants and many other animals, helps offspring survive?

- **A)** herding
- **B)** nest building
- **C)** courtship
- **D)** imprinting

Correct Answer

A) herding

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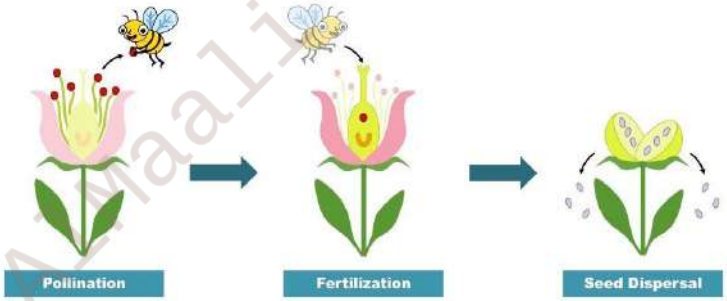
Q9: Explain how colorful features like fruit or flowers help plants reproduce.
Pages: 76

ENVIRONMENTAL Connection Bees play an important role in pollination. As they move from flower to flower collecting nectar for foc they transfer pollen, enabling the plants to reproduce. How is climate change affecting this relationship between bees and pollination?

Explain the relationship between bees and pollination.



Bees are called pollinators because they help with pollination, sexual reproduction between plants with flowers (seed plants).

The bee will collect pollen from one flower from the Stamen which has the male sperm cell. The bee will fly over to the next flower where the pollen with the egg cell will fall down the pistil to meet the female egg cell. Fertilization (joining of the two cells) will take place at the bottom of the pistil to make a new seed.

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Q9: Explain how colorful features like fruit or flowers help plants reproduce.
Pages: 76

COLLECT EVIDENCE

How do plants, such as the purple tansy, find mates and spread seeds? Record your evidence (B) in the chart at the beginning of the lesson.

B. Answers may vary. Sample answer: Plants find mates and spread seeds by a variety of methods. They use flowers to attract pollinators that carry pollen from one plant to a mate. I read about how bees pollinate flowers and how changes in flowering time affect whether or not plants are pollinated in the article *Buzzing About Climate Change*. Seeds can travel via dispersal by wind (as I modeled in the Lab *Blowing in the Wind*), water, or animals.

Remember: Pollination is how sexual reproduction occurs in Flowering plants.

The pollinators like bees, birds and butterflies are helpers.

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Q9: Explain how colorful features like fruit or flowers help plants reproduce.

Practice Questions:

Which of the following is TRUE regarding the apple trees shown below?

Learning Outcomes Covered

- SCI3.1.01.024

a. They produce seeds

b. They reproduce asexually

c. They produce cones

d. They produce spores

Q.6: P1:Reproduction and Growth of plants

Mark(s): 5/5

What does the letter B refer to in the image below?

Learning Outcomes Covered

- SCI3.1.01.024

a. Stamen

b. Pistil

c. Seed

d. Spores

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Q9: Explain how colorful features like fruit or flowers help plants reproduce.

Practice Questions:

A tree produces seeds in pods when wind-borne pollen from another tree of the same species reaches the flowers. Each seed contains genetic information so the seed can grow into an adult tree. Which do you predict would be the effect of this process?

Learning Outcomes Covered

- SCI.3.1.01.034

a. The tree produces genetically diverse offspring.

b. The tree produces genetically identical offspring.

c. The tree produces offspring that are identical to the female parent.

d. The tree produces offspring that are identical to the male parent.

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Q9: Explain how colorful features like fruit or flowers help plants reproduce.

Practice Questions:

3) Which part of a flower is the male reproductive organ?

- **A)** ovary
- **B)** pistil
- **C)** stamen
- **D)** sepal

Correct Answer

C) stamen

5) _____ are plant structures that are colorful and may have specific odors to attract pollinators.

Correct Answer

Flowers

6) Which is an example of an animal behavior that directly affects plant reproduction?

- **A)** birds building a nest using twigs
- **B)** squirrels burying nuts
- **C)** ducks hiding in predators in marsh grass
- **D)** horses moving in a herd over prairie grass

Correct Answer

B) squirrels burying nuts

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Practice Questions:

Why do many plants have colorful flowers?

A. To keep animals away
B. To help them grow faster
C. To attract animals like bees and birds
D. To store water

Correct Answer: C

How do colorful fruits help plants with reproduction?

A. They make the plant taller
B. They help the plant move
C. Animals eat the fruit and spread the seeds
D. The colors keep the fruit warm

Correct Answer: C

Which of the following best explains how bright colors in flowers and fruit help a plant reproduce successfully?

A. Bright colors make the plant easier to see in the dark
B. Bright colors scare off insects and animals
C. Bright colors attract pollinators to flowers and encourage animals to eat fruit, spreading pollen or seeds to new places
D. Bright colors provide energy for the plant to grow

Correct Answer: C

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Q10: Make a claim and explain how genes and local conditions affect plant's growth.
Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.
Pages: 77, 78 and 81 (Q3)

Plants respond to light, gravity and touch.

The response cause a growth or a flowering response.

A response to a environmental stimuli (change) is called a tropism.

1. Plant growing towards or away from light: **Phototropism**
2. Plant responding to touch: **thigmotropism**
3. Plant responding to gravity: **gravitropism**

Genetic factors also affect how plants grow.

Plants can inherit genes from their parents that give them traits like color and type of flowers.

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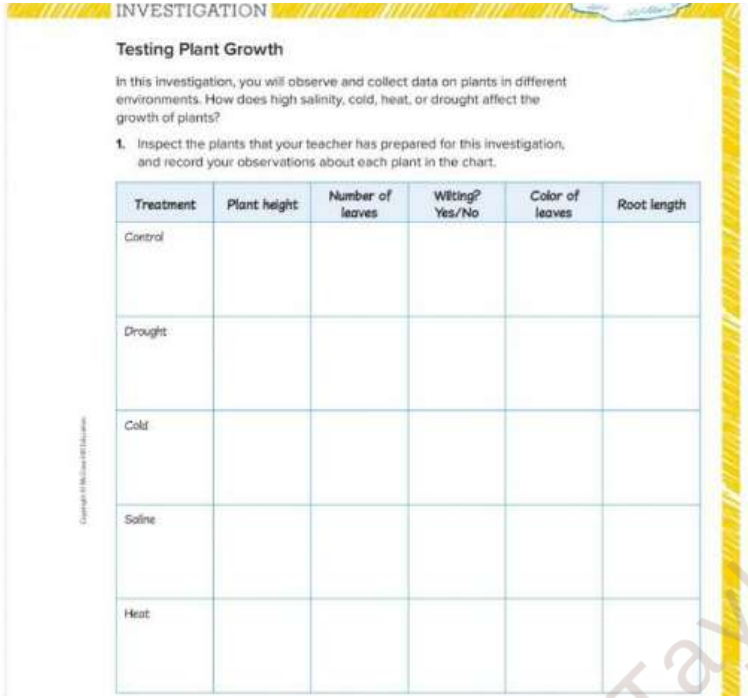

INVESTIGATION

Testing Plant Growth

In this investigation, you will observe and collect data on plants in different environments. How does high salinity, cold, heat, or drought affect the growth of plants?

1. Inspect the plants that your teacher has prepared for this investigation, and record your observations about each plant in the chart.

Treatment	Plant height	Number of leaves	Wilting? Yes/No	Color of leaves	Root length
Control					
Drought					
Cold					
Saline					
Heat					

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Other factors that can affect the growth of a plant:

- Salinity-how much salt in the water or soil
- Temperature too cold
- Temperature to hot
- Draught- temperature very high and no water available

Parts of plant affected:

- Plant height
- Number of leaves
- Leaves wilting (when they look weak)
- Color of leaves
- Length of roots

Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.

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THREE-DIMENSIONAL THINKING

Analyze and interpret the data from the Investigation *Testing Plant Growth* to explain the **cause and effect** relationship between environmental factors and plant growth. Record your response in your Science Notebook.

Cause and Effect in Plant Growth

In our plant investigation, we saw that different things in the environment change how plants grow. These are called **causes**, and they lead to **effects** on the plant. Here are some examples:

- **Water (Cause):** When we gave plants the right amount of water, they grew tall and healthy.
  Effect: Too little water made the plants wilt or stop growing.

- **Touch (Cause):** When we touched or moved the plants every day, they grew shorter and stronger.
  Effect: The plant reacted to being touched by growing differently to protect itself.

- **Gravity (Cause):** Plants always grow their roots down into the soil and their stems up toward the sky, even if we turn them sideways.
  Effect: Gravity helps roots grow down and stems grow up, so the plant stays in the right position.

These cause and effect relationships help us understand how plants react to the world around them.

Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.

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COLLECT EVIDENCE

What factors affect how plants, such as the purple tansy, grow? Record your evidence (C) in the chart at the beginning of the lesson.

C. Answers may vary. Sample answer: Factors that affect how plants grow are both genetic and environmental. Genetic factors, like flower color or location, are controlled by genes. Plants grow best under certain environmental conditions. Evidence of this was seen in the Investigation *Testing Plant Growth*, where plant growth was affected by drought, saline, cold, and hot conditions. I read about how plants also respond to environmental factors like light, touch, and gravity.

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Q10: Make a claim and explain how genes and local conditions affect plant's growth.
Pages: 77 and 81 (Q3)

Answer: D

All the factors listed will affect the growth of the plant.

Mr. Blake is preparing to plant his yearly corn crop. In order to produce the best crop yield possible, he considers a variety of factors that can affect the growth of the corn.

3. Which of the following is not a factor that can affect the growth of the corn crops?
   - **A** gene for color of kernels
   - **B** amount of water given
   - **C** the space available for the plants to grow
   - **D** all of the above

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Q10: Make a claim and explain how genes and local conditions affect plant's growth.
Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.
Pages: 77, 78 and 81 (Q3)

Practice Questions:

Two plants of the same species are planted in different environments. One grows tall and healthy, while the other stays small. What is the most likely explanation?

A. The smaller plant forgot to grow
B. Only one plant had genes
C. The environment affected how each plant's genes were expressed
D. The plants didn't want to be the same
Correct Answer: C

Which statement best supports a claim that both genes and local conditions affect plant growth?

A. All plants grow exactly the same regardless of where they are planted
B. A plant's growth depends only on the amount of sunlight it gets
C. A plant may have genes for tall growth, but poor soil and little water can limit its height
D. Plants grow best when they are planted far apart from other plants

Correct Answer: C

Which of the following can affect how a plant grows?

A. The color of nearby plants
B. The plant's genes and its environment
C. The time of day the plant is planted
D. The shape of its leaves only

Correct Answer: B

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Q10: Make a claim and explain how genes and local conditions affect plant's growth.
Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.
Pages: 77, 78 and 81 (Q3)

Practice Questions:

What is it called when a plant bends toward sunlight?

A. Gravitropism
B. Phototropism
C. Hydration
D. Digestion

Correct Answer: B

Which of the following is an example of how a plant responds to gravity?

A. A flower blooming in spring
B. Roots growing downward into the soil
C. A plant growing faster in rain
D. Leaves changing color in fall

Correct Answer: B

Which set of examples correctly matches a plant response to each stimulus?

A. **Light** – roots grow deeper; **Touch** – flowers bloom; **Water** – stem bends
B. **Gravity** – stem grows downward; **Light** – leaves curl up; **Touch** – roots stop growing
C. **Light** – stem bends toward window; **Gravity** – roots grow down; **Touch** – vine wraps around pole
D. **Water** – leaves change color; **Light** – flowers wilt; **Touch** – petals fall off

Correct Answer: C

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Q10: Make a claim and explain how genes and local conditions affect plant's growth.
Q11: Describe how plants respond to environmental stimuli such as light, gravity, touch and water.
Pages: 77, 78 and 81 (Q3)

Practice Questions:

8) Which would provide the most reliable data about the genetic factors that affect plant growth?

- **A)** two plants of different species grown in the same conditions
- **B)** three plants of different species, each given a different amount of light
- **C)** one plant grown in ideal environmental conditions
- **D)** two plants of the same species grown in the same environmental conditions

Correct Answer

A) two plants of different species grown in the same conditions

4) Which is the most likely description of a seed that is dispersed by wind?

- **A)** It can float.
- **B)** It has a thick, hard shell.
- **C)** It has a waterproof coating.
- **D)** It is small and light.

Correct Answer

D) It is small and light.

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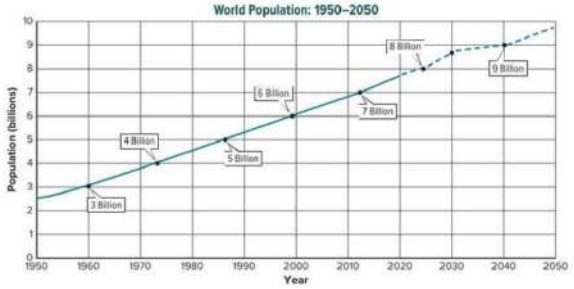
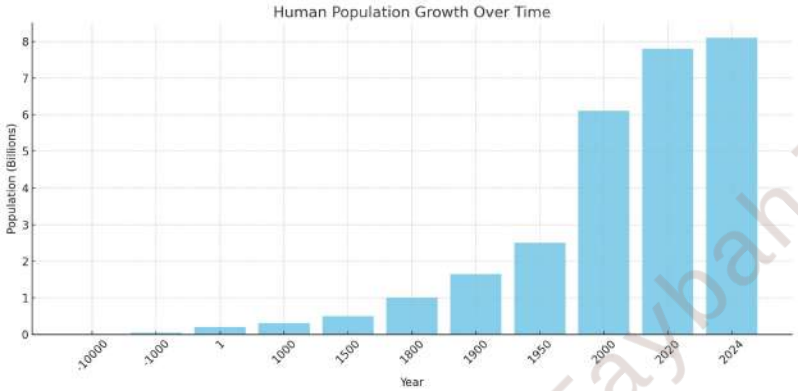
Q12: Use data to explain the effects of human actions on Earth's land.
Pages: 12 (Q6-7)





As the population increases (number of people) so does the need for our natural resources.

Natural resources: something from earth that living things need to meet their needs.

We need water, food, shelter to survive.

The more people on earth, the more of these resources we need.

Analyze and Conclude

6. Use your bar graph to explain changes in Earth's human population over time.

Sample answer: As time went on, the population increased more rapidly.

7. What impact might this have on land?

Sample answer: As the human population increases, land resources become limited because more people are using them.

Q12: Use data to explain the effects of human actions on Earth’s land.

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Practice Questions:

Which of the following is a way humans can harm Earth’s land?

A. Planting trees
B. Picking up trash
C. Building too many roads or cutting down forests
D. Riding a bicycle

Correct Answer: C

A scientist collects data on farmland before and after the use of chemical fertilizers. Over time, the soil becomes less fertile. What does the data most likely show?

A. Chemical fertilizers make the land better forever
B. The land improves with more chemicals
C. Human actions can damage soil health over time
D. Soil does not change

Correct Answer: C

A chart shows that areas with heavy mining activity have higher erosion and lower plant growth than untouched areas. What conclusion can be made from this data?

A. Mining has no effect on the land
B. Mining improves the soil’s ability to grow plants
C. Human activities like mining can lead to land damage, such as erosion and loss of vegetation
D. Plants grow better in mined areas

Correct Answer: C

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Q13: Describe how human actions can help or harm the land.
Pages: 22 and 31 (Q2)

Deforestation: the cutting of large areas of forests and trees for human activities

Agriculture: Farming of animals and vegetables.

Urbanization: development of land for houses and buildings

Waste Disposal: Landfills and hazardous waste- more people means more trash and waste products.

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Q13: Describe how human actions can help or harm the land.
Pages: 22 and 31 (Q2)

THREE-DIMENSIONAL THINKING

Summarize your understanding of the cause-and-effect relationships between human activities and the environmental impacts on land in the table below.

Type	Causes	Effects
Deforestation	needing land for living space, urban development, agriculture, and resources from trees	loss of biodiversity; decrease in soil quality; increase in carbon dioxide levels
Agriculture	As human populations grow, so does our need for food.	groundwater contamination from fertilizers; desertification; takes up space
Urbanization	Increase in population leads to the development of land for houses and other buildings.	increased flooding; habitat disruption; disappearance of wetlands
Waste Disposal	Increase in population means more waste produced.	landfills take up space; hazardous substances can leak into groundwater; increased pollution

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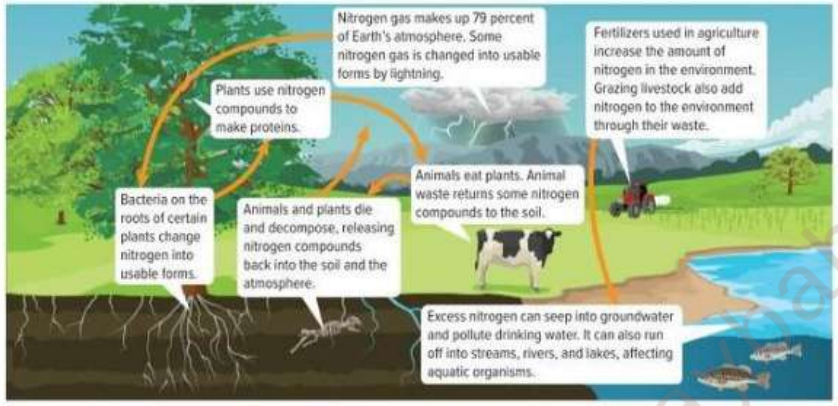
Q13: Describe how human actions can help or harm the land.
Pages: 22 and 31 (Q2)

Three-Dimensional Thinking

Study the nitrogen cycle shown in the figure below. Nitrogen is an element that cycles naturally through ecosystems. Living things use nitrogen to make proteins. When these living things die and decompose or produce waste, they release nitrogen into the soil or the atmosphere. Scientists estimate that human activities have doubled the amount of nitrogen cycling through ecosystems.



2. How does the use of fertilizers affect the environment?

   A Fertilizers decrease the amount of nitrogen in the environment. A decrease in nitrogen can cause an increase in lightning and storms.

   B Fertilizers increase the amount of nitrogen in the environment. Excess nitrogen can pollute groundwater and surface water.

   C Fertilizers decrease the amount of nitrogen in the environment. This affects the rate at which plants and animals decompose.

   D Fertilizers increase the amount of nitrogen in the environment. An increase in nitrogen disrupts plant processes.

Answer: D

Nitrogen entering the atmosphere will affect how plants can grow.

Q13: Describe how human actions can help or harm the land.

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Practice Questions:

5) Composting means piling up grass and leaves so they can be allowed to gradually decompose. Which describes an impact that composting has on land?

- **A)** a decrease in the amount of plastics recycled
- **B)** a decrease in the amount of land used for landfills
- **C)** a decrease in the amount of groundwater in an area
- **D)** a decrease in the amount of land used for farming

Correct Answer

B) a decrease in the amount of land used for landfills

1) Which describes a step people can take to help minimize the effects of using land for agriculture?

- **A)** use more land for farms
- **B)** increase the number of different pesticides used
- **C)** remove crops quickly to increase erosion of soil
- **D)** plant crops that attract many different kinds of insects

Correct Answer

D) plant crops that attract many different kinds of insects

2) Which is NOT a negative consequence of clearing land during deforestation?

- **A)** increase in the number of endangered species
- **B)** increase in the amount of photosynthesis
- **C)** increase in the amount of carbon dioxide in the atmosphere
- **D)** increase in the chance of flooding in an area.

Correct Answer

B) increase in the amount of photosynthesis

Q13: Describe how human actions can help or harm the land.

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Practice Questions:

Which of the following is a way humans can harm the land?

A. Planting trees in empty fields
B. Throwing trash into rivers or forests
C. Using reusable bags
D. Building birdhouses

Correct Answer: B

How can deforestation and urbanization affect the land?

A. They help grow more trees and attract wildlife
B. They reduce air pollution and clean water
C. They remove trees and natural habitats, leading to soil erosion and loss of animal homes
D. They make plants grow faster and healthier

Correct Answer: C

Which statement best explains how different human actions affect the land?

A. Urbanization always improves the land by building more homes for people and animals
B. Agriculture, waste disposal, and deforestation can harm the land, while planting trees or recycling can help protect and restore it
C. Deforestation improves air quality by removing trees
D. Waste disposal in open fields helps plants grow by adding new materials to the soil
Correct Answer: B

Q13: Describe how human actions can help or harm the land.

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Practice Questions:

A scientist compares two farming regions: one uses natural compost and rotates crops; the other uses chemical fertilizers and does not rotate crops. After five years, the second region has lower soil quality and higher erosion. What does this data most likely show?

A. Chemical fertilizers always produce better soil
B. Crop rotation and natural compost can help preserve soil health, while certain agricultural practices may degrade land over time
C. Using only one method of farming leads to more plant growth
D. All types of agriculture improve soil equally

Correct Answer: B

A satellite image shows that after urbanization, a region has more paved surfaces and fewer green areas. Local data shows increased flooding and higher temperatures. What conclusion can be drawn about the effects of urbanization on land?

A. Urbanization cools the land and reduces flooding
B. Urbanization improves plant growth due to concrete and buildings
C. Urbanization can lead to increased runoff and temperature by reducing natural land cover
D. Urbanization only affects wildlife, not the land itself

Correct Answer: C

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Q14: Explain with evidence how humans change water environments. Pages 42 and 57 (Q2)

How building dams affects water environments:

A **dam** is a big wall built across a river. People build dams to **hold back water**, **make electricity**, or **store water** for farms and cities. Dams can be useful, but they also **change the environment** in big ways.

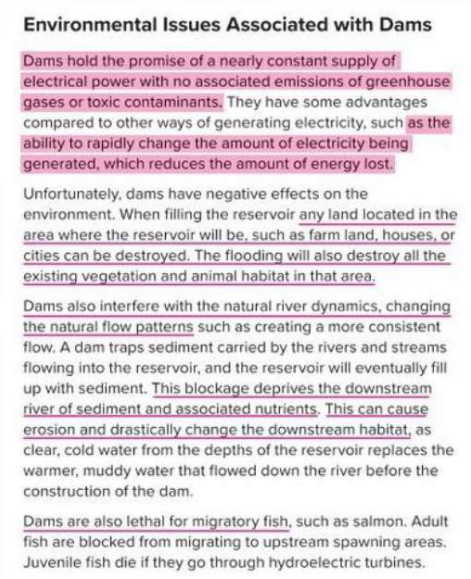
1. They Stop Rivers from Flowing Naturally

- Rivers are supposed to **flow** from the mountains to the ocean.
- When a dam blocks the river, it **slows down or stops the water**.
- This can hurt animals that need fast-moving water to live, like certain fish.

2. They Make It Hard for Fish to Move

- Some fish, like **salmon**, swim upstream to lay their eggs.
- But a dam is like a giant wall that **blocks their path**.
- Even if there are special fish ladders, not all fish can use them.

Compiled by: Ms Taybah Jaffar Al Ma'ali School



Environmental Issues Associated with Dams

Dams hold the promise of a nearly constant supply of electrical power with no associated emissions of greenhouse gases or toxic contaminants. They have some advantages compared to other ways of generating electricity, such as the ability to rapidly change the amount of electricity being generated, which reduces the amount of energy lost.

Unfortunately, dams have negative effects on the environment. When filling the reservoir any land located in the area where the reservoir will be, such as farm land, houses, or cities can be destroyed. The flooding will also destroy all the existing vegetation and animal habitat in that area.

Dams also interfere with the natural river dynamics, changing the natural flow patterns such as creating a more consistent flow. A dam traps sediment carried by the rivers and streams flowing into the reservoir, and the reservoir will eventually fill up with sediment. This blockage deprives the downstream river of sediment and associated nutrients. This can cause erosion and drastically change the downstream habitat, as clear, cold water from the depths of the reservoir replaces the warmer, muddy water that flowed down the river before the construction of the dam.

Dams are also lethal for migratory fish, such as salmon. Adult fish are blocked from migrating to upstream spawning areas. Juvenile fish die if they go through hydroelectric turbines.

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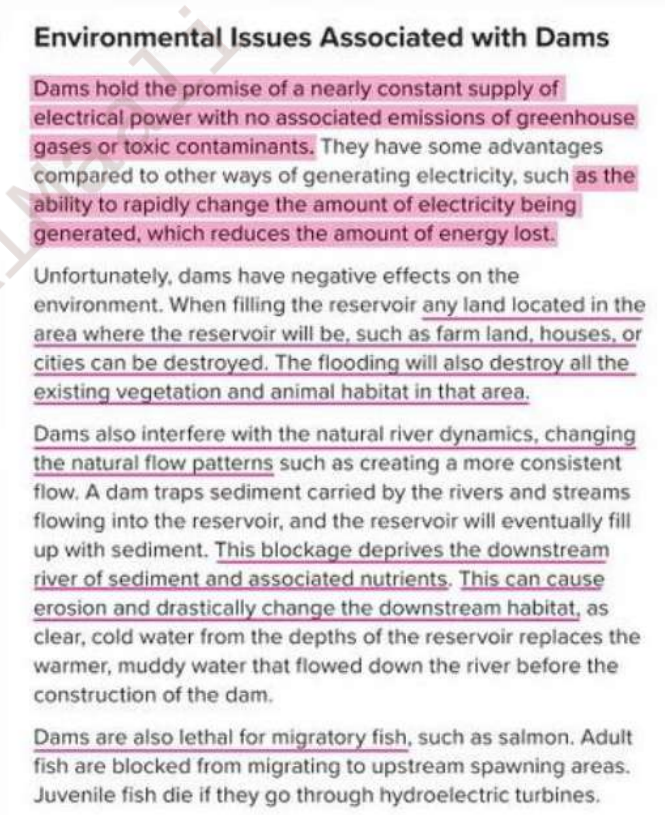
Q14: Explain with evidence how humans change water environments.
Pages 42 and 57 (Q2)

3. They Flood Land Behind the Dam

- When a dam is built, the water piles up behind it and forms a **lake** (called a reservoir).
- That can **flood forests, farms, or homes**, and animals may lose their habitats.

4. They Dry Out Places Downstream

- After water is held in the dam, **less water flows to places downstream** (farther down the river).
- This can cause **wetlands and farms** to dry up.
- Plants and animals that depend on that water may not survive.



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Q14: Explain with evidence how humans change water environments. Pages 42 and 57 (Q2)

THREE-DIMENSIONAL LEARNING

Write a short statement to present to your city council supporting or not supporting the construction of a new dam in your community. What changes would a dam bring to your local ecosystem? Explain your reasoning.

An **ecosystem** is all the living things (like animals and plants) and non-living things (like water and rocks) in one place, working together.

When people build a **dam**, it changes the ecosystem around the river

1. The flow of the river changes
2. Fish change their swimming patterns (migration patterns)
3. Animals in the area can lose their homes
4. Plants can die
5. Temperature and water quality can be affected.

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Q14: Explain with evidence how humans change water environments. Pages 42 and 57 (Q2)

Three-Dimensional Thinking

Read the passage below. Then answer the question that follows.

> Estuaries form where rivers containing freshwater flow into the salty waters of an ocean. The mixture of fresh and salt water stays balanced as long as both the river and ocean tides continue to mix at the river's mouth. Estuaries are usually calm and often contain many food sources. Because of this, many species of fish and other organisms breed and raise their offspring in estuaries. These organisms are adapted to life in brackish estuary waters.

2. **LIFE SCIENCE** Connection A new recreation area is being built upstream from an estuary that is known for its abundance of fish and turtles. A dam will be built across the river and a large lake will form behind it. What effect will the dam have on the organisms living in the estuary?

   A Organisms adapted to living only in brackish water will survive.

   B Organisms adapted to living in brackish water will move to live in the open ocean.

   C Some of the organisms will die because the water will be less salty.

   D Some of the organisms will die because the water will be more salty.

Answer: D

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Practice Questions:

What is one advantage of using dams to generate electricity?

A. They release greenhouse gases
B. They quickly generate electricity with less energy loss
C. They create pollution
D. They destroy farmland

Correct Answer: B

What happens to the land where the dam reservoir is built?

A. It becomes a forest
B. It stays unchanged
C. It may be flooded and destroyed
D. It is used to grow crops

Correct Answer: C

How do dams negatively impact the flow of rivers downstream?

A. They increase nutrient levels in the river
B. They improve river speed for fish migration
C. They block sediment and nutrients, causing erosion and habitat changes
D. They clean the water and prevent erosion

Correct Answer: C

Q14: Explain with evidence how humans change water environments.

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Practice Questions:

What is a long-term environmental effect of sediment being trapped in the reservoir behind a dam?

A. The river downstream becomes more fertile
B. The riverbed downstream may erode, and the habitat changes drastically
C. Fish populations increase due to warmer water
D. Sediment helps restore downstream farmland

Correct Answer: B

Based on the text, what is the most complex consequence of building a dam on a river ecosystem?

A. It increases the amount of energy produced by the river
B. It leads to increased agricultural activity downstream
C. It disrupts multiple natural processes—flooding land, blocking sediment and nutrients, altering habitats, and affecting fish migration
D. It only changes the temperature of the water in the reservoir

Correct Answer: C

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Q15: Explain how human actions can harm oceans, rivers and lakes.
Pages: 51 and 55

Trash like plastic bottles, bags, glass, and foam hurts ocean animals.

Birds, fish, and other animals can get stuck in the trash or eat it by mistake.

Plastic breaks into small pieces but does **not** go away easily.

Some trash gets trapped in big ocean currents called **gyres**.

The **North Pacific Gyre** has collected a lot of trash, forming the **Great Pacific Garbage Patch**.

This garbage patch is about **twice the size of Texas**.

About **80% of the trash** comes from land in **North America and Asia**.

Solid Waste Trash, including plastic bottles and bags, glass, and foam containers, causes problems for marine organisms. Many birds, fish, and other animals become entangled in plastic or mistake it for food. Plastic breaks up into small pieces, but it does not degrade easily. Some of it becomes trapped in circular currents, or gyres. The North Pacific Gyre has collected so much plastic and other debris that a portion of it has been dubbed "The Great Pacific Garbage Patch." The patch is thought to be twice the size of Texas. About 80% of the debris originates from land-based activities in North America and Asia.

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Sediments are bits of dirt and sand that wash into the ocean.

Some of this is natural, but humans make it worse by **cutting down trees** near rivers and oceans.

Tree roots help hold the soil in place. Without them, dirt washes away more easily.

Too much sediment in the water can:

- **Clog animals** like clams and sponges that filter water to eat.
- **Block sunlight** in the water, which plants and tiny creatures need to stay alive.

If plants don't get enough light, they **can die**.

Excess Sediments Large amounts of land-based sediment wash into oceans, as shown to the right. Some erosion is natural. However, some is caused by humans, who cut down trees near rivers and ocean shorelines. Without the roots of trees and other vegetation to hold sediments in place, the sediments more readily erode. Excess sediments can clog the filtering structures of marine filter feeders, such as clams and sponges. Excess sediments also can block light from reaching its normal depth. Organisms that use light for photosynthesis could die.

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Algae are tiny water plants that need **nutrients** like nitrogen and phosphorus to grow.

These nutrients often come from **pollution**, like **fertilizers** used on farms that wash into oceans.

When too many nutrients enter the water, **algae grow too fast** — this is called an **algal bloom**.

Algal blooms can:

- Turn water **red, green, or brown**
- Sometimes even **glow at night**

Algal blooms can **harm fish and other ocean life** by using up too much oxygen in the water.

A lot of these extra nutrients come from **farm runoff** and **fertilizers** used on land.

Excess Nutrients Algae need nutrients such as nitrogen and phosphorus to survive and grow. For this reason pollution from excess nutrients is beneficial to algae. However, too many nutrients can cause an explosion in algal populations. An algal bloom occurs when algae grow and reproduce in large numbers. Algal blooms also can cause water to appear red, green, brown, or even glow at night. Nitrates and phosphates can be abundant in agricultural runoff as well as coastal upwelling zones. Many scientists have found that a major source of excess nitrates and phosphates is from land-based fertilizers that wash into oceans.

These algae are bioluminescent—they glow!

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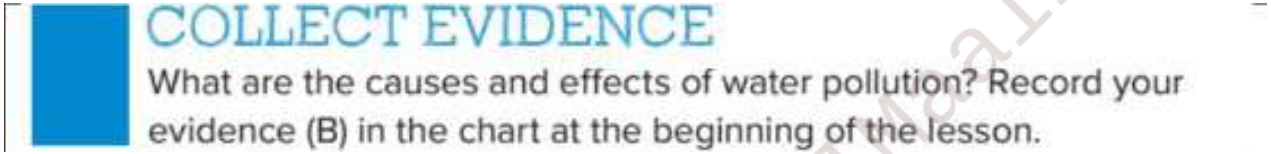

Causes: pollution from solid waste, agriculture, industrial waste, sewage, mining and fertilizers, cutting down trees for space for dams

Effects: water becomes contaminated, destroyed animal habitats, sediment erosion, sinkholes, algal blooms

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COLLECT EVIDENCE

What are ways in which we can monitor or minimize human impact on Earth's water? Record your evidence (C) in the chart at the beginning of the lesson.

Make laws to minimise water pollution.

Use less water

Recycle

Properly dispose of harmful substance.

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Practice Questions:

Which of the following is a way humans can harm water ecosystems like oceans and rivers?

A. Cleaning up trash at the beach
B. Dumping chemicals or plastic into water
C. Planting trees near lakes
D. Watching fish swim in rivers

Correct Answer: B

Why is dumping waste into rivers harmful to fish and other aquatic life?

A. It gives fish more food
B. It cleans the water naturally
C. It pollutes the water and removes oxygen, making it hard for aquatic animals to survive
D. It helps plants grow faster in the water

Correct Answer: C

Which statement best explains how different human activities combine to harm freshwater and ocean ecosystems?

A. Boating and fishing improve the health of water ecosystems
B. Littering only affects land, not water
C. Urban waste, oil spills, and agricultural runoff all pollute water, harm wildlife, and disrupt natural balance
D. Water ecosystems are not affected by human activity

Correct Answer: C

Q15: Explain how human actions can harm oceans, rivers and lakes.

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Practice Questions:

3) Which is NOT a positive impact on Earth's water?

- **A)** fixing a dripping faucet
- **B)** disposing of chemicals properly
- **C)** increasing fertilizer runoff
- **D)** increasing recycling

Correct Answer

C) increasing fertilizer runoff

5) Which correctly describes something that can have both a positive and negative impact on the environment?

- **A)** building a dam
- **B)** picking up litter
- **C)** decreasing the use of chemical fertilizers
- **D)** using less water at home

Correct Answer

A) building a dam

6) The Great Pacific Garbage Patch is a large area of floating trash in the Pacific Ocean that is caused, in part, by ocean currents. Which is a step people can take to minimize its effect on Earth's water?

- **A)** use satellites to measure its size
- **B)** measure ocean currents to predict where it will go
- **C)** design new and better ways to recycle
- **D)** work harder to prevent oil spills.

Correct Answer

C) design new and better ways to recycle