Reef Recovery Routes

Compare two ways corals produce offspring

L.8.2A.5 "Compare and contrast advantages and disadvantages of asexual and sexual reproduction."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline an advantage and circle a disadvantage of each method, then label each mark A for asexual or S for sexual to compare their trade-offs.

How a Coral Reef Grows

1. On a reef, a coral colony can make new polyps by budding. A bud grows from an existing polyp and usually stays attached, helping the colony cover nearby rock. This is asexual reproduction: one parent makes offspring with nearly identical genes, except when a mutation occurs. Budding does not require finding another colony, so growth can continue even when neighbors are far away. Yet attached buds cannot by themselves start a colony on a distant reef. Each bud also inherits nearly the same genetic strengths and weaknesses.

2. Many corals also reproduce sexually by releasing eggs and sperm into the water. When an egg from one colony joins a sperm from another, the fertilized egg can develop into a swimming larva. A larva may settle on rock away from its parents and begin a new colony. Sexual reproduction mixes genes, making offspring genetically different from one another. Some differences may help a coral survive a change, such as warmer water. But eggs and sperm must meet, and many larvae die before finding a suitable place to settle.

3. Imagine a storm breaks apart a reef, leaving one colony on a patch of bare rock. Budding could quickly add polyps to that colony without a partner, but the new polyps would offer little genetic variety. If other colonies remain nearby, sexual reproduction could send varied offspring toward open spaces. It may take longer to build a colony this way because a larva must survive, settle, and grow. Neither method always wins: budding helps occupy nearby space, while sexual reproduction may spread corals farther and increase the chance that offspring handle new conditions.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which method could build up an existing colony more quickly? Why might the other method take longer?

2. If just one coral colony remains, which method can still add polyps? What requirement makes the other method less likely in this situation?

3. How do the two methods differ in their ability to start a colony far from a parent? Include one risk of the method that can travel farther.

4. How do offspring from the two methods differ genetically, and why might that matter if the water gets warmer?

3 YOUR TURN

Your own words

A reef has several surviving coral colonies, bare rock nearby and farther away, and unusually warm water is expected next year. Write 4 to 5 sentences explaining why both ways of reproducing could help this reef; include one advantage and one disadvantage of each method.

ANSWER KEY

Reef Recovery Routes

GRADE 8 · L.8.2A.5

PART 1 · READ AND MARK

Underline an advantage and circle a disadvantage of each method, then label each mark A for asexual or S for sexual to compare their trade-offs. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which method could build up an existing colony more quickly? Why might the other method take longer?	**Budding can quickly add attached polyps. Sexual reproduction may take longer because a larva must survive, settle, and grow.**
2	If just one coral colony remains, which method can still add polyps? What requirement makes the other method less likely in this situation?	**Budding can add polyps without another colony. Sexual reproduction described in the passage requires an egg and sperm from different colonies to meet.**
3	How do the two methods differ in their ability to start a colony far from a parent? Include one risk of the method that can travel farther.	**Attached buds cannot start a distant colony by themselves, but a larva produced sexually may settle far away. Many larvae die before settling.**
4	How do offspring from the two methods differ genetically, and why might that matter if the water gets warmer?	**Buds have nearly identical genes and little variety. Sexual offspring have varied genes, so some may have differences that help them survive warmer water.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Budding could quickly fill bare rock beside the surviving colonies without needing another colony. However, attached buds would not reach distant rock and would have little genetic variety. Sexual reproduction could send larvae toward distant rock and produce varied offspring that might cope better with warmer water. Yet eggs and sperm must meet, and many larvae die before settling, so both methods offer useful ways for the reef to recover.

Accept other passage-supported comparisons that accurately distinguish nearby growth from dispersal, and genetic similarity from variation. Do not require students to claim that any offspring will survive warmer water.