

Name: \_\_\_\_\_ Partner's Name: \_\_\_\_\_ Color: \_\_\_\_\_ Date: \_\_\_\_\_ W

**Complex Text & CER: Antibiotic Resistance \*VERSION C\***

<https://www.reactgroup.org/toolbox/understand/antibiotic-resistance/mutation-and-selection/>

**Overview: Mutations can result in antibiotic resistance in bacteria. Resistant bacteria survive antibiotic treatment and can increase in numbers by natural selection.**

Directions:

- 1. With your table partner, take turns reading each paragraph out loud. Highlight key points as you read.**

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*Con su compañero de mesa, tome turnos para leer cada párrafo en voz alta. Resalte los puntos clave a medida que lee.*

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*Avèk patnè tab ou a, pran tou li chak paragraf byen fò. Highlight pwen kle jan ou li.*

- 2. Talk with your partner. Write the most important sentence from the paragraph in the "key point" section.**

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*Habla con tu pareja. Escriba la oración más importante del párrafo en la sección "punto clave".*

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*Pale ak patnè ou. Ekri fraz ki pi enpòtan nan paragraf la nan seksyon "kle pwen" la.*

## Mutations

Bacteria grow and multiply fast and can reach large numbers. When bacteria multiply, one cell divides into two cells. Before the bacterium can divide, it needs to make two identical copies of the DNA in its chromosome; one for each cell. Every time the bacterium goes through this process there is a chance (or risk, depending on the end result) that errors occur; so-called mutations. These mutations are random and can be located anywhere in the DNA. Mutations can also form due to external factors like radiation or harmful chemicals.

Key point:

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## Mutations can provide resistance to antibiotics

Mutations are one way for bacteria to become resistant to antibiotics. Some spontaneous mutations (or genes that have been acquired from other bacteria through horizontal gene transfer) may make the bacterium resistant to an antibiotic. If we were to treat the bacterial population with that specific antibiotic, only the resistant bacteria will be able to multiply; the antibiotic *selects for* them. These bacteria can now increase in numbers and the end result is a population consisting of mainly resistant bacteria.

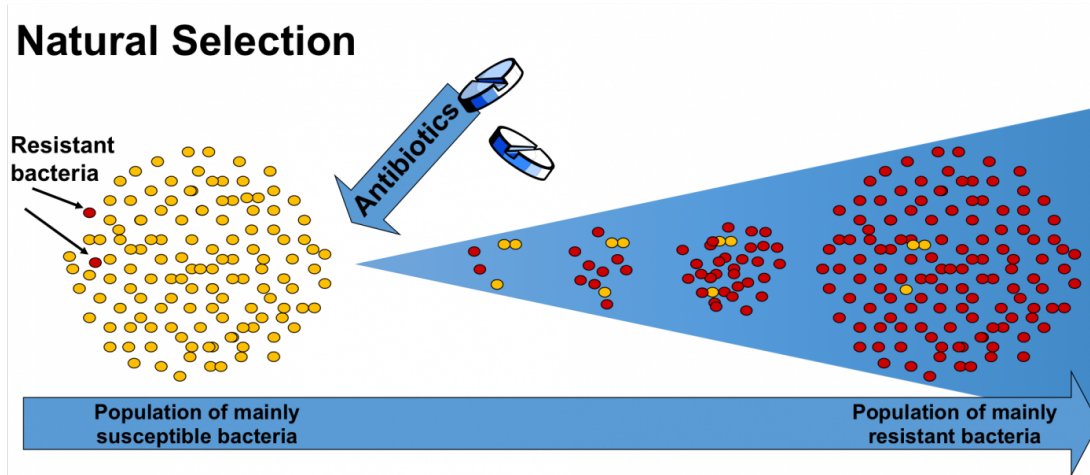
Key point:

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Analyze the image and read the text beneath it, then create a key point.



**Figure 1.** Natural selection of antibiotic resistant bacteria. The starting point in this example is a large bacterial population mainly consisting of bacteria that are susceptible to antibiotics and a couple of bacteria that are antibiotic-resistant by chance. A bactericidal antibiotic is added, which kills most of the susceptible bacteria in the population, while the resistant bacteria survives. Only the resistant bacteria will continue to proliferate in the presence of the antibiotic and increases in number over time. The end result is a population of mainly resistant bacteria.

Key point:

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**\*\*FIRST DRAFT\*\***

## Claim-Evidence Reasoning (CER): Antibacterial Soaps

### Background:

Some hand soaps are labeled “antibacterial,” often accompanied by a “+” sign. This means that they contain chemicals specifically designed to kill bacteria. While “regular” soaps (without the label) simply help wash bacteria off your body, these added chemicals kill bacteria before washing them away.



*SPANISH: Algunos jabones de manos están etiquetados como "antibacterianos", a menudo acompañados por un signo "+". Esto significa que contienen sustancias químicas diseñadas específicamente para matar las bacterias. Mientras que los jabones "normales" (sin la etiqueta) simplemente ayudan a lavar las bacterias de su cuerpo, estos agregan químicos para matar las bacterias antes de eliminarlas.*

*HAITIAN CREOLE: Gen kèk savon men yo make "antibiyotik," souvan akonpaye pa yon siy "+". Sa vle di ke yo gen pwodwi chimik ki fèt espesyalman pou touye bakteri. Pandan ke "regilye" savon (san etikèt la) tou senpleman ede lave bakteri nan kò ou, sa yo te ajoute pwodwi chimik touye bakteri anvan lave yo ale.*

**Question:** Should drugstores sell and advertise the use of antibacterial hand soaps? Why or why not? Respond using CER format.

[Note: Must use the words “mutation” and “natural selection” in your answer.]

**SPANISH:**

*¿Deben las farmacias vender y anunciar el uso de jabones antibacterianos para manos? ¿Por qué o por qué no? Responder utilizando el formato CER.*

*[Nota: Debe usar las palabras "mutación" y "selección natural" en su respuesta.]*

**HAITIAN CREOLE:**

*Yo ta dwe famasi vann ak piblisite itilize nan savon men anti-bakteri? Poukisa oswa poukisa pa? Reponn avèk fòm CER.*

*[Remak: Ou dwe itilize mo "mutasyon" ak "seleksyon natirèl" nan repons ou an.]*

Claim:

Drugstores (circle one →) **should** or **should not** sell and advertise the use of antibacterial hand soaps.

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Evidence 1 (take an exact line from text): \_\_\_\_\_

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Reasoning 1 (explain why the evidence is relevant to your claim):

*This is important because* \_\_\_\_\_

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Evidence 2 (take an exact line from text): \_\_\_\_\_

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Reasoning 2 (explain why the evidence is relevant to your claim):

*This is important because* \_\_\_\_\_

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Conclusion (re-state your claim in slightly different words):

*Therefore, the evidence shows that* \_\_\_\_\_

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Partner Feedback by \_\_\_\_\_

<b>Compliments:</b> (Minimum 2)	<b>Questions:</b> (Minimum 1)	<b>Suggestions:</b> (Minimum 2)
1)	1)	1)
2)	2)	2)
3)	3)	3)
4)	4)	4)

**Writer's response to peer edit feedback:**

I agree with the feedback that \_\_\_\_\_

\_\_\_\_\_

I disagree with the feedback that \_\_\_\_\_

\_\_\_\_\_

