

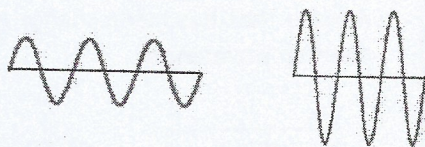
DIRECTIONS: As you learn about waves, highlight the answers in the reading before answering the questions.

1. On the diagram below, label the amplitude of the wave.



2. A wave with more energy has a _____ amplitude.
(lower, higher)

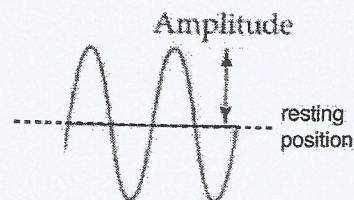
3. Circle the wave that has more energy.



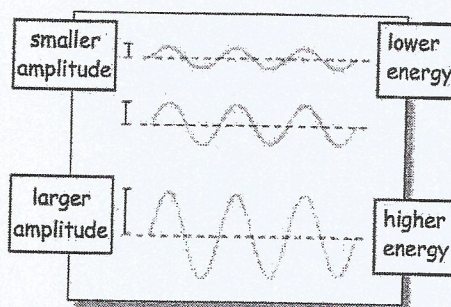
Explain your choice.

A wave can be described by its amplitude, its wavelength, and its frequency.

The amplitude is how far the particles move away from their rest position. The rest position on the right is represented by the dotted line. This is where there are no disturbances. If a disturbance happens the amplitude increases.

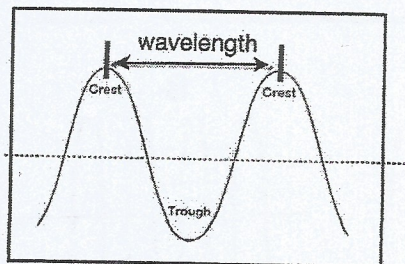


Notice that the amplitude of the wave is half the distance between the highest and the lowest value.



A wave that has more energy will have a larger amplitude. A wave the has less energy will have a smaller amplitude.

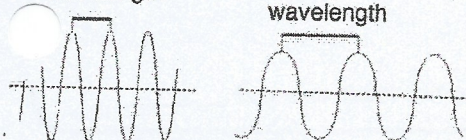
To describe how long the wave is you need to know the wavelength. The wavelength is the distance from one point on a wave to an identical point on the next wave.



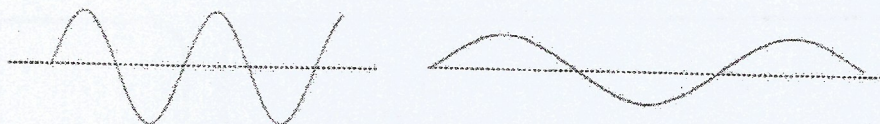
Each wave can have a different length. Some are longer and some are shorter.

shorter wavelength

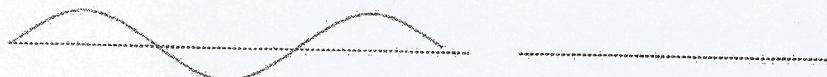
longer wavelength



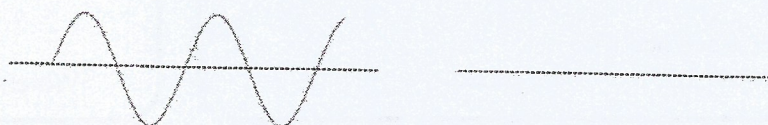
4. On each diagram below label the wavelength.



5. DRAW a wave that has a shorter wavelength than the one below.

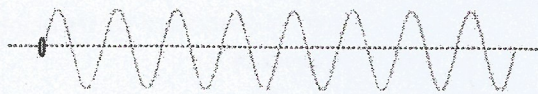


6. DRAW a wave that has a longer wavelength than the one below.



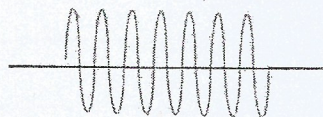
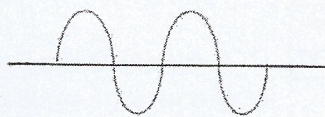
7. Below represents the amount of waves that passed in 1 second.

About 7 waves in
1 second.



So the frequency would be _____
(number) (unit)

8. Both of these diagrams represent the number of waves that occurred in 1 second. Circle the set with the lowest energy.



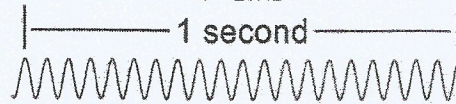
Explain your choice.

12. Lower frequencies have _____ energy. (THINK)
(more, less)

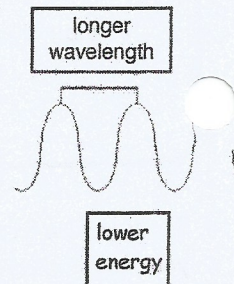
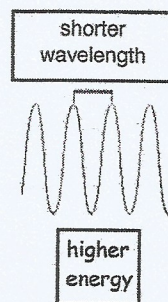
Frequency tells you the number of times the wavelength occurs in 1 second. A wave with more energy will have a higher frequency (more waves passing in 1 second).

Frequency is expressed in hertz (Hz).

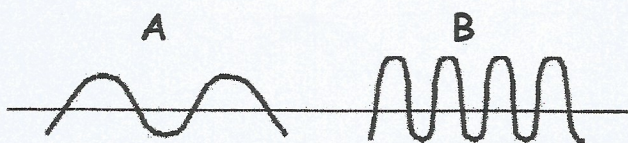
20 waves in 1 second: 20Hz
 $f = 20\text{Hz}$



A wave that has more energy will have a shorter wavelength.



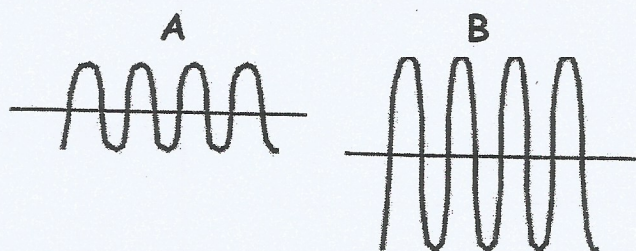
PRACTICE.....



13. Which wave has the
longest wavelength? _____

Why did you choose this one?

Which wave has the
most energy? _____



14. Which wave has the
larger amplitude? _____

Why did you choose this one?

Which wave has the most energy? _____

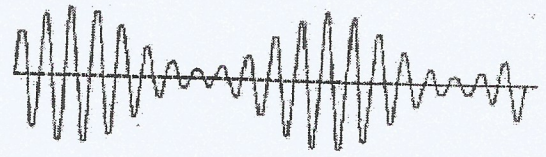
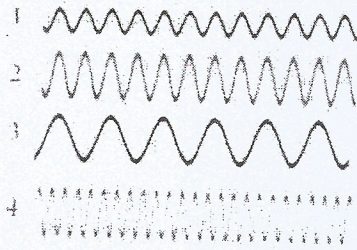
15. Which set of waves has

....longest wavelength? _____

....shortest wavelength? _____

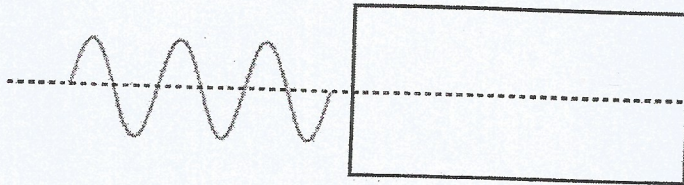
....higher frequency? _____

....lowest frequency? _____



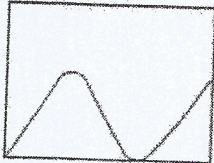
16. What is changing? _____
(amplitude, frequency)

17. Draw a wavelength that has more energy than the one below.

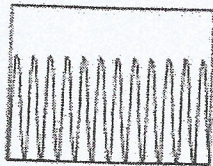


18. What is happening to the energy? _____
(increasing, decreasing)

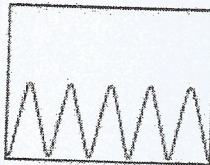
Explain your reasoning.



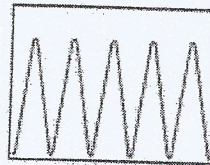
A



B



C



D

19. longest wavelength? _____
shortest wavelength? _____

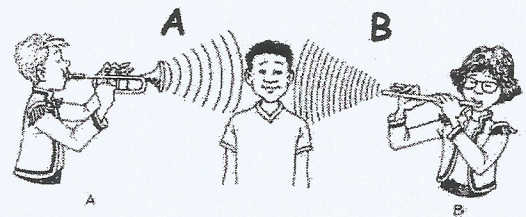
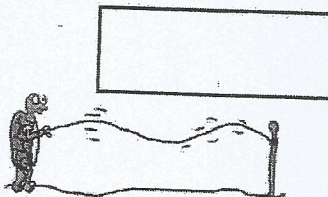
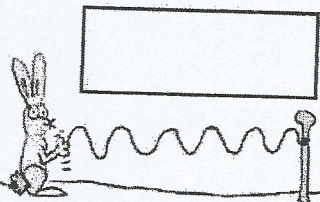
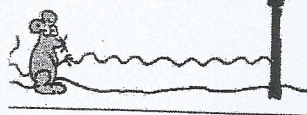
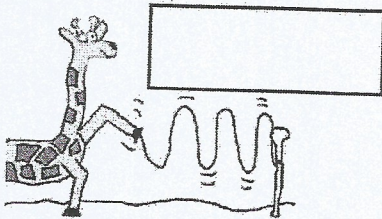
20. IDENTIFY and LABEL each wave below.

highest frequency

lowest frequency

highest amplitude

lowest amplitude



21. Which wave has more energy? _____

Explain your reasoning.