

## Girls

The Third semester 2026		
Teacher: ameera azzam	Class: 9-Adv-Grade	Name:
Lesson Title: waves Properties- standing waves		Subject: physics
Learning outcomes: 1. Define a standing wave. / 2. Define nodes and antinodes and describe how they are formed. / 3. calculate the wave length depending on to rope length.		
Evaluate yourself:	Achieved the learning outcome : <input checked="" type="checkbox"/>	<input type="checkbox"/> :

**Task 1:** Outcome 1: Define a standing wave.

1. Which of the following accurately describes a Standing Wave?

- A wave that moves through a medium at a constant speed.
- A wave that appears to stay in one place due to the interference of two identical waves traveling in opposite directions.
- A wave that disappears immediately upon hitting a boundary.

**Task 2:** Outcome 2: Define nodes and antinodes and describe how they are formed.

Instructions: Drag the terms below to their correct positions on the standing wave diagram:

• Node
• Antinode
• Wavelength ( $\lambda$ )

The distance covering two full loops/three consecutive nodes
The points with zero displacement/no movement).
The points with maximum displacement/vibration

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### Task 4:

Word Search Puzzle: Find the following hidden words (Horizontal or Vertical): (WORDS: NODE, ANTINODE, INTERFERENCE, AMPLITUDE, STANDING)

I	N	T	E	R	F	E	R	A	N	C	E
S	X	A	M	P	L	I	T	U	D	E	R
T	Q	L	N	O	D	E	R	W	Q	S	M
A	W	R	O	K	L	B	V	N	M	Z	X
N	E	Y	D	A	N	T	I	N	O	D	E
D	R	U	E	P	O	I	U	Y	T	R	E
I	T	P	L	K	J	H	G	F	D	S	A
N	Y	O	M	N	B	V	C	X	Z	L	K
G	U	I	O	P	L	K	J	H	G	F	D
Z	X	C	V	B	N	M	Q	W	E	R	T

### Task 5:

**Scenario:** You tighten a guitar string (increasing tension  $T$ ) while keeping the frequency  $f$  constant. Predict the results:

1. The wave speed ( $v$ ) will .
2. The wavelength ( $\lambda$ ) will .
3. The number of nodes visible on the string will .

شعارنا: جيل مبدع مبتكر حماية للبيت الموحد

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