Anatomy of a Two-Point Source Interference Pattern
## Lesson Notes

Learning Outcomes
- What are the recognizable features of a two-point source interference pattern?
- What language is used to refer to the various elements of a two-point source interference pattern?
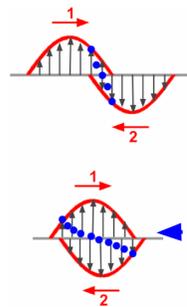
Interference and the Wave Model

Light interferes constructively and destructively. ➡ Light has a wave-like nature. ➡ Wave Model of light ➡ Mathematical description of wave behavior

Constructive Interference
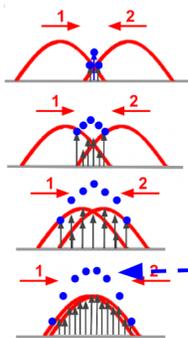
The **supercrest** formed by crest interfering with crest will be referred to as a **maximum**.
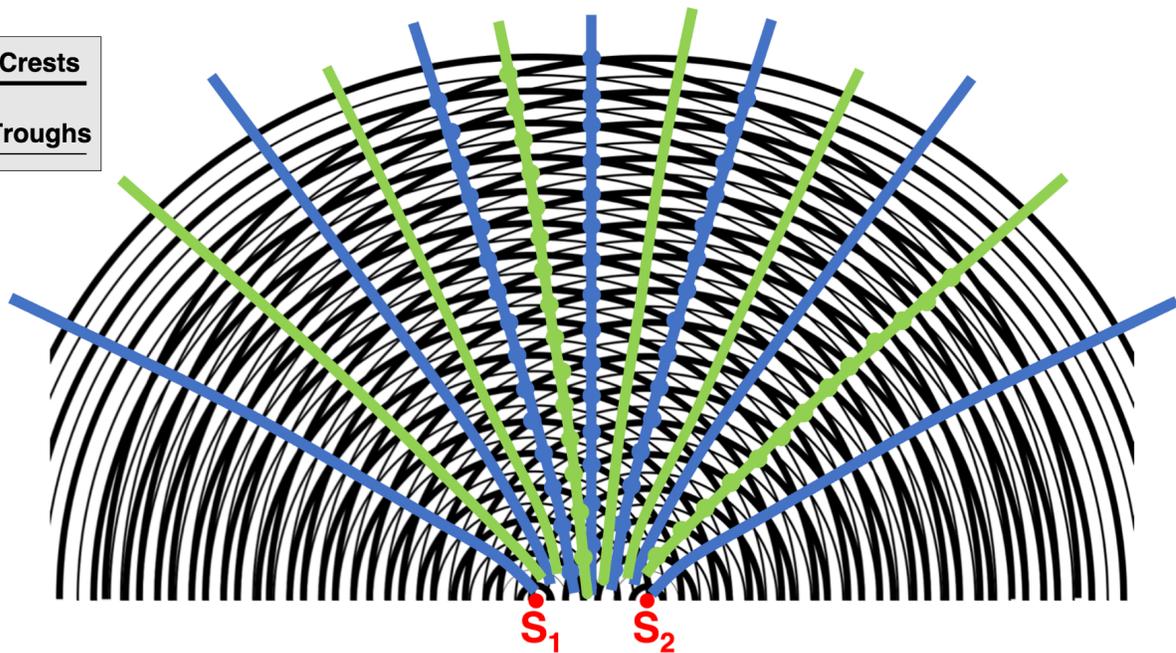
Destructive Interference

The **cancellation** that occurs when a crest interferes with a trough will be referred to as a **minimum**.
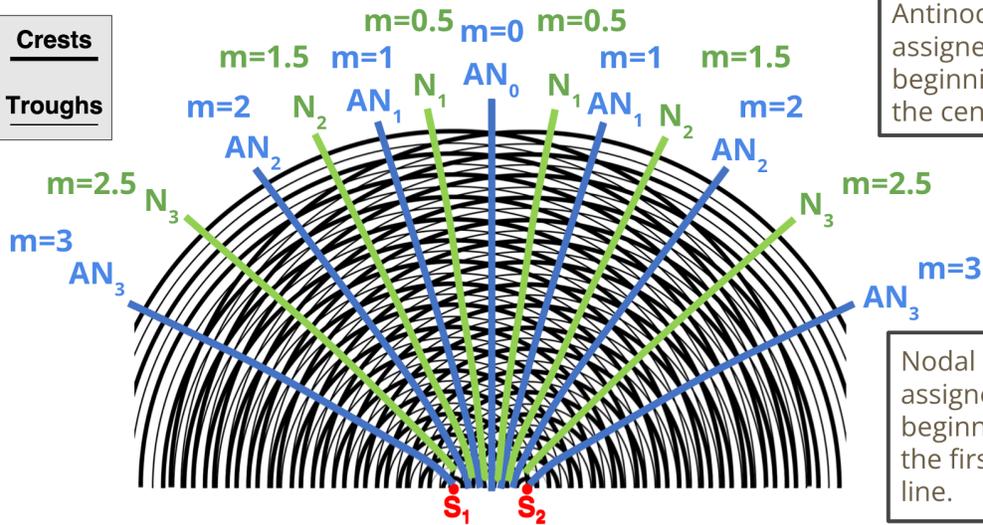
Anatomy of an Interference Pattern

Crests
——
Troughs

S_1 S_2

A Pattern of Words and Numbers

——Antinodal lines (constructive interference)   **——Nodal lines** (destructive interference)

Crests
——
Troughs

m=0.5 m=0 m=0.5
m=1.5 m=1 N_1 AN_0 N_1 m=1 m=1.5
m=2 N_2 AN_1 AN_1 N_2 m=2
AN_2 AN_2
m=2.5 N_3 N_3 m=2.5
m=3   m=3
AN_3 AN_3

S_1 S_2

Antinodal lines are assigned whole #s, beginning with 0 for the central line.

Nodal lines are assigned half #s, beginning with ½ for the first-order nodal line.

Summary of Pattern Anatomy

AN_0 = central antinodal line (**m=0**)

AN_1 = first antinodal line (**m=1**)

AN_2 = second antinodal line (**m=2**)

AN_3 = third antinodal line (**m=3**)

N_1 = first nodal line (**m=0.5**)

N_2 = second nodal line (**m=1.5**)

N_3 = third nodal line (**m=2.5**)

AN_0
m=0
AN_1 AN_1
m=1   m=1
AN_2 AN_2
m=2   m=2

AN_3 AN_3
m=3   m=3

S_1 S_2

N_1 N_1
N_2 m=0.5 m=0.5 N_2
m=1.5   m=1.5
N_3 N_3
m=2.5   m=2.5

S_1 S_2