Just picture it: problems on the wave theory of light

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In Class (Instructor)

In Class (Students)

Begin Here.

10 min — Instructor introduces how to conceptualize waves in two dimensions and lines rather than points in space. They present the image of interfering concentric circles.

5 min — **In groups** students draw two sets of concentric circles on their whiteboards, separated by an integer or half an integer number. They also pick a note-taker for the session, who will then be in charge of sending the notes/their picture to the rest of the group.

Instructor can give students acetates of the concentric circles to help them sketch the drawings.

5 min — Using their drawings, students mark the points of constructive and destructive interference and connect the dots to get the antinodal and nodal lines — 01

Instructor presents problem1.
They then walk around the classroom to clarify concepts and encourage students to ask each other for help.

15 min — In their groups, students work on solving the first conceptual problem using the whiteboard and drawings. — 01

As groups find the solution, they can answer questions from their peers and explain it to others. — 02

Once all groups have solved problem 1, the instructor presents problem 2, which is quite difficult.

25 min — In their groups, students try to solve problem2 using both drawings and formulas. — 01

If needed, after 25 minutes instructor explains problem2.
They then present problem3 and introduce problem4.

If there is time, students begin to solve problem4 in class. If not, they do so at home. This problem will be discussed at the beginning of the following class. — 01

- Individual Work
- Work in Groups
- Whole Class

- Writing
- Problem Solving
- Peer-Review
- Experiment
- Instruction