



Out of Class (Instructor)

Begin Here.

Just before class, the instructor sets up the activity in a laboratory space.

- One set of 3 different stations are set up around the classroom (setup A), while another set of 3 stations, that are slightly different are also setup around the classroom (setup B)
- Stations from setup A are interspersed with the stations from setup B, with maximum spacing in between the stations to ensure groups working on the same set of stations cannot hear each other's answers
- Stations are covered and only revealed at the start of Part 2
- All questions to be answered for Part 2 are provided on a sheet of paper which each group is given

Stations are as follows:

- Station 1: A bond-line drawing of a complex organic molecule; students are asked to identify whether the designated carbons are chiral (up to 12) and determine the configuration of each stereocenter (R or S)
- Station 2: 3 different displays all containing: 1 molecular model and 1 pair of molecular drawings (either Newman projection, Fischer projection or bond-line structure), ideally all encased in a transparent plastic box; for each display, students are asked to identify the relationship between the pair of drawings (enantiomers, diastereomers, or constitutional isomers) and which drawing represents the 3D model without touching the model
- Station 3: A molecular model of a long carbon chain with various substituents; students are asked to draw a Fischer projection starting with a particular group on top and ending with a particular group on the bottom, without touching the model



In Class (Students)

01



Students complete a Two-stage test; Part 1: A written 20 minute individual assessment which contains stereochemistry questions. Students submit their answers at the end of Part 1.








Part 2: Students form groups of 3 to 4 and participate in a group assessment for the next 30 minutes. Half of the groups visit setup A and the other half visit setup B. Groups visit each station (for 10 minutes each) and answer the corresponding questions.



Each group submits their answers at the end of Part 2.



After class, the instructor will post solutions online, including pictures of all the 3D models. Each picture will be matched up with the corresponding molecular drawings.

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|---|-----------------|
|  | Individual Work |
|  | Work in Groups |
|  | Problem Solving |
| Bloom's Taxonomy | |
|  | Remember |
|  | Understand |
|  | Apply |
|  | Analyze |
|  | Evaluate |
|  | Create |

02

03