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## USING ANALOGIES to TEACH ABOUT COMPLICATED PROCESSES

### Basic structure of an analogy activity

- A complicated process is described to students. Three to six elements are emphasized.
- Working in groups of three, students formulate an analogy (one per group) that includes items that correspond with each of the emphasized elements.
- The instructor goes to each group and listens to them describe the analogy, then gives them an oral assessment, indicating which aspects are good and which need modification
- The group works on improving the analogy, if necessary

### Keys to good analogy activities

- Keep illustration of the complicated process visible to the class. Have list of items that must be included in the analogy available to each group—written on the board, in a PowerPoint slide, on a handout, etc..
- Restrict students to groups of two or three unless class is larger than 30.
- Have students write down analogy in a formulation that you can check quickly.
- If students are frustrated, give them a hint
- Plan to have a break. Groups that have completed an analogy that you deem up to standard get to start their break immediately after you check them. Other groups get to take the break after a certain amount of time has elapsed, even if they have not been checked, or even if their analogy has not been rated as up to standard.
- Challenge your students if their analogies are incomplete; direct them to a new approach if they are trying something too difficult
- Summarize some good analogies in front of the class after the break

### Variations

- If you have just a short amount of time, give students a hint at the start
- Have groups write up analogies and turn them in as an assignment
- Make students add elements to their analogies. After a group has produced a satisfactory analogy, ask them to expand their analogy to include more details—items that correspond to details of the process that you described that they did not have to consider in the first version of their analogy.
- Sometimes the name of a process suggests an analogy; for example, the name that molecular biologists use for the process of making of proteins is “translation”. Give students the name of a process that suggests an analogy, describe the process, then ask groups to deduce why that term is used for the process.