

Lesson II Activity: The Cell Cycle and Cancer

Activity 1: Making a cell cycle

The student will need:

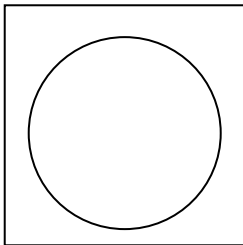
Cardboard or Posterboard
Brass Fasteners (shown below)

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

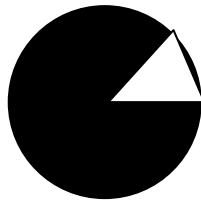
Scissors
Markers (all different colors)

The objective of this activity have students make their own cell cycle model. Two pieces of board will be fasten together by punching a hole in the center of each and placing a brass fastener through them.

The board on top will have a portion of it cut out in pie form.



Bottom



Top

The bottom board will be cut into a square and a circle should be drawn in the center. The student can then divide the circle up as he/she sees fit into sections, G₁, S, G₂, and M for each phase of the cell cycle. The student can divide it up using a marker. Within each section, the student should describe the events that take place, in the right order, clearly marking restriction points, checkpoints and various requirements for a cell to continue on to the next phase. These should all be in one color. In a different color, have the student identify which parts of the cell cycle can

be prone to abnormal regulation during the onset of cancer. All of this information should be in the circle of the bottom piece. After they have completed this, they can attach the top piece on to the bottom board with the brass fastener and they have their very own cell cycle. As the top piece spins around, it will reveal various parts of the cell cycle and the cell progresses.

If the students have space, encourage them to draw pictures, pathways, etc. Drawings of synthesis of DNA in S phase can be done, or what the DNA looks like in prophase, anaphase, metaphase and telophase of mitosis. These are just a few of examples of how they can be creative with the project and make it their own.

Lesson II Activity: The Cell Cycle and Cancer continued

Activity 2: News Report on the Cell Cycle or Tour of the Cell Cycle

The objective of this activity is to allow the students to have fun pretending, either that cancer is a convict that is breaching all phases of the cell cycle in a breaking news report, or that they are giving a tour of the cell cycle.

Allow the students to decide whether they would like to give a news report, or pretend they are giving a VIP tour of the cell cycle.

NEWS REPORT:

1. Divide the classroom into the different phases of the cell cycle, *G1*, *S*, *G2*, *M* by making signs, or putting masking tape on the floor, protruding outward from the center of the room, to make "pies".
2. Split students up into their groups from Lesson I Activity.
3. Give the students some class time and time at home to come up with creative ideas for this product.
4. The students should come up with clever ways of making a news report on the cell cycle and how it goes awry in cancer.
5. One student each could be a news reporter in each phase of the cell cycle and perhaps two as the reporters in the studio. Each student would give a report of what is going on at their location (or phase).
6. For example, the student in *G1*, would act as a field reporter and describe what *G1* is normally like, and how cancer might have breached the restriction point and has fled to the *S* phase of the cell cycle. Each reporter will take turns describing what is going on.

The students can choose how to do the news report as long as their presentation includes what goes on in the cell cycle and what goes wrong in cancer.

CELL CYCLE TOUR:

"Welcome, to the fabulous new *Cell Cycle Museum*. I will be _____, your tour guide. Feel free at any time to interrupt me and ask me questions at any time."

1. Have the students come up with a way to pretend that they are giving a tour through the cell cycle as they walk through the classroom and the other students watch.
2. The students can pretend all of them are different tour guides of each phase of the cell cycle, or one student can be the main tour guide the entire time. The student can use their imagination and pretend they are cyclins/Cdks or other molecular players in the cell cycle. It is up to them, as long as they come up with displaying how cells cycle and how cancer cells are abnormally cycling.