

## Apogee One-Week Program

### Course Title

Cell Biology

### Course Description

Living things are composed of cells, but just what is a cell? What do cells look like and how do they work? Where do cells come from and how do they reproduce? All these questions and more will be answered in this introductory cell biology course. Students hone their laboratory skills as they examine the structures of various living cells, observe cells as they reproduce, and discuss the laws of genetic inheritance. Students create models, research the function and structure of cell parts and compare cells found in plants and animals. In addition to lab work, students will conduct some independent reading and writing assignments.

### Outcomes

Upon successful completion of this course, students will

- Use proper laboratory skills
- Analyze and respond to readings in science topics
- Identify and describe the structure and reproduction of cells
- Identify and describe certain cell processes
- Differentiate between plant and animal cells, their structure and processes
- Understand and analyze genetic inheritance
- Predict patterns of genetic inheritance

### Resources and Materials

Griffin, Robert D. Biology Coloring Book. HarperCollins Publications. 1986. ISBN 0-06-460307-5.

Grimm, Adele. Case Hopper: The Story of Neuropsychologist Nancy Wexler. Joseph Henry Press. 2006. ISBN 0-891-16953-7.

Keller, Rebecca W. Real Science – 4 Kids, Biology Level 1, Student Text. Gravitas Publications. 2005. ISBN 978-0974914923.

### Student Evaluation and Grading Policy for Cell Biology

There is no specific course grade given in Apogee courses. Students will be evaluated daily, although the learning process itself will be the focus of much of the evaluation. Students will be given a daily quiz. They will also be evaluated on the following: reading logs, lab reports, journal entries, in-class participation, group work, and class projects, as well as class work and homework. Students will receive a written evaluation at the end of the session based on these assessments.

## Schedule

Date	Topic	Activities	Assignments and/or Assessment	Instructional Strategies
June 29	Introduction Intro to Cells	Introductions Brief overview of syllabus Slime making Pick up textbooks Discuss syllabus Visualizing and verbalizing/mindmapping Discuss <u>Gene Hunter</u> , set up reading log Active reading discussion KWL: Cells and living things Characteristics of Living Things and taxonomy <b>Lab: CELL Model Building Part I</b> LUNCH How to use a microscope/labeling its parts <b>Simple Lab: Microscope and newspaper</b> <b>Simple Lab: onion cell/animal cell lab</b> Closing quiz	<u>Gene Hunter</u> /log	Flexible grouping, strategies for the auditory, visual, and kinesthetic learner
June 30	Cells and Cell Theory	Discuss <u>Gene Hunter</u> Cell theory rap Notes: Cell theory Reading: Plant and animal cells Venn Diagrams <b>Lab: CELL Model Building Part II</b> LUNCH <b>Lab: Identify/label/diagram Protista</b> Coloring and labeling cell parts Begin cell chart Closing quiz	<u>Gene Hunter</u> /log, complete cell chart, complete coloring and labeling	Lab/flexible grouping Jigsaw
July 1	Cells and Cell Transport	Discuss <u>Gene Hunter</u> Prepare for cell presentations Presentations/note taking LUNCH Notes: Osmosis and Diffusion <b>Lab: Osmosis and Diffusion</b> Lab: Osmosis and Diffusion across an egg membrane Mindmap	<u>Gene Hunter</u> /log, complete lab write-up, read about photosynthesis	Lab/flexible grouping Jigsaw

		Closing quiz		
July 2	Genetic Inheritance	Discuss <u>Gene Hunter</u> Lab: Osmosis and Diffusion across an egg membrane Review activity: photosynthesis Notes/reading: Intro. to DNA Lab: DNA gumdrops Notes: Amino acids, proteins, mutations Lab: Probability LUNCH Simple punnett squares Lab: Baby Face Lab	<u>Gene Hunter</u> /log, complete punnett squares	Flexible grouping, Strategies for the auditory, visual, and kinesthetic learner
July 3	Cell Division And Wrap Up/Expo	Discuss <u>Gorilla Mountain</u> Lab: Osmosis and Diffusion across an egg membrane Notes/reading: Mitosis <b>Lab: Cells in Mitosis - Identification</b> Create games about cell structure and function LUNCH EXPO	NONE	Flexible grouping, Strategies for the auditory, visual, and kinesthetic learner

Summer

Sample