



2010-2011 Curriculum Overviews

7th Grade

FALL SEMESTER
&
WINTER/SPRING SEMESTER

7A MATH, Fall Semester 2010

Number Sense

Summary: Exploring Decimals & Percents, Proportional Relationships & Integers

Comfort with numbers serves as the foundation for almost everything else that students do in math class – and for many things that they will do in life outside the classroom. Students will deepen their understanding of numbers less than one including parts of a whole and negative numbers.

Many adults have never stopped to recognize that our number system is all based on the number 10. As an introduction to decimals, students will explore alternate number systems in other bases.

To deepen students' understanding of proportional relationships, students will explore the relationship between the gears on a bike and the revolutions of its wheels.

Students will extend their knowledge of negative numbers with real-world applications including temperature, latitude, and banking.

Students will:

- Compute with decimals and percents.
- Compute with integers, with an emphasis on negative integers.
- Develop strategies to estimate computations and justify the reasonableness of results.
- Convert between fractions, decimals and percents.
- Represent proportional relationships with coordinate graphs & tables.
- Solve problems involving proportional relationships and negative numbers.

Students will compile a portfolio of evidence that they are meeting the following learning targets.

Learning Targets that Remain Consistent from Semester to Semester

I can...

- 1) Use precise mathematical vocabulary.
- 2) Explain my thinking. This may include solving problems in more than one way.
- 3) Work cooperatively. This means that during group/partner work, I share my ideas, listen to others' ideas, and compromise.
- 4) Complete and turn in my work on time.

Learning Targets Specific to this Semester from the Number & Operations, Algebra, and Geometry Strands

I can...

- 5) Understand numbers, ways of representing numbers, relationships among numbers & number systems.
- 6) Compute fluently and make reasonable estimates with all rational numbers.
- 7) Understand and apply proportionality.

Major Projects/Products

Individual, Group, and Family Problems-of-the-Week

Portfolios

Anchor Texts & Resources

Colors for a Large Wall, Ensworth Kelly

Mathematics: Applications and Connections, Glencoe McGraw-Hill
Course 2 Chapters 2, 3, 4, 5, 8 & 11

MathScape; Seeing and Thinking Mathematically, Glencoe McGraw-Hill

REALMS Math 7A Fall Semester 2010

Unit 1: Statistics

Guiding Questions:

- Is there such thing as an average student? Explain.
- How can statistics help people make decisions?
- How can statistics mislead people in making decisions?

Resources & Technology:

- Glencoe Course 2 Chapter 3
- Glencoe Course 3 Chapter 4
- Freakonomics by Levitt & Dubner
- Super Freakonomics by Levitt & Dubner
- Microsoft Excel

Summary of Expedition:

Students use statistics to answer real-world questions such as: (1) When placing a REALMS clothing order, what sizes and in what quantities should be purchased? (2) What type of peanut butter should be purchased for REALMS lunches? and (3) Why do drug dealers still live with their moms? Students investigate the similarities and differences between mean, median, and mode and assess their strengths and weaknesses. Students create, interpret and analyze various statistical displays to communicate their findings.

Learning Targets Specific to the Statistics & Probability Strand

I can...

- 8.2.1 Organize and display data (e.g., bar graphs, histograms, box-and-whisker plots, scatter plots, pie charts, stem-and-leaf plots) to pose and answer questions; and justify the reasonableness of the choice of display.
- 8.2.2 Use measures of center and spread to summarize and compare data sets.
- 8.2.3 Interpret and analyze displays of data and descriptive statistics.
- 8.2.4 Compare descriptive statistics and evaluate how changes in data affect those statistics.
- 8.2.5 Describe the strengths and limitations of a particular statistical measure, and justify or critique its use in a given situation.
- 8.2.6 Use sample data to make predictions regarding a population
- 8.2.7 Identify claims based on statistical data and evaluate the reasonableness of those claims.
- 8.2.8 Use data to estimate the likelihood of future events and evaluate the reasonableness of predictions.

Learning Targets Consistent Throughout the Year

I can...

- recognize that we all use math everyday
- use mathematics to solve problems in a variety of contexts
- appreciate the role of curiosity, discovery, and imagination in mathematics
- use precise mathematical language including symbols, notation, different forms of representation, and its procedures
- reflect critically upon my work and the work of others to include: explaining the reasonableness of an answer, justifying methods and conclusions, and suggesting improvements
- use a quiver of mathematical technology tools
- understand that mathematics is a human endeavor pursued by people the world around
- demonstrate REALMS Habits of Work and Attending Skills
- develop confidence in my ability to continue the study of mathematics

Assessment:

- Classroom investigations/activities/experiences
- POW, Problem sets, & Quizzes
- Project: REALMS Census

REALMS Math 7B, Fall Semester 2010

Unit 2: Linear Equations

Guiding Questions:

- If lines could talk, what would they say?
- How can lines help explain the past and present and predict the future?

Resources & Technology:

- Glencoe C2 Chapter 6
- Glencoe C3 Chapter 1
- Glencoe C3 Chapter 7 section 9,10
- iPod touches with graphing calculator app
- Microsoft Excel

Summary of Expedition:

Students investigate various phenomenons and explain their relationships and patterns with linear equations. The expedition begins with students constructing a meaning of slope through addition and subtraction of unlike fractions. Students extend their understanding when investigating bridge design and human physiology. Various verbal problems are posed with students translating the relationships into algebraic and graphic representations. An interdisciplinary project, Alexander Calder Mobiles, concludes the unit.

Learning Targets Specific to the Algebraic Reasoning Strand

I can...

- 7.1.4 Apply properties of rational numbers and algebra to write and solve linear equations in one variable.
- 8.1.1 Translate among contextual, verbal, tabular, graphical, and algebraic representations of linear functions. (tie Eq to graphs)
- 8.1.2 Determine the slope of a line and understand that it is a constant rate of change.
- 8.1.3 Identify and interpret the properties (i.e. slope, intercepts, continuity, and discreteness) of linear relationships as they are shown in the different representations and recognize proportional relationships ($y/x = k$ or $y = kx$) as a special case.
- 8.1.4 Use linear functions and equations to represent, analyze and solve problems, and to make predictions and inferences.

Learning Targets Consistent Throughout the Year

I can...

- recognize that we all use math everyday
- use mathematics to solve problems in a variety of contexts
- appreciate the role of curiosity, discovery, and imagination in mathematics
- use precise mathematical language including symbols, notation, different forms of representation, and its procedures
- reflect critically upon my work and the work of others to include: explaining the reasonableness of an answer, justifying methods and conclusions, and suggesting improvements
- use a quiver of mathematical technology tools
- understand that mathematics is a human endeavor pursued by people the world around
- demonstrate REALMS Habits of Work and Attending Skills
- develop confidence in my ability to continue the study of mathematics

Assessment:

- Classroom investigations/activities/experiences
- Problem sets & Quizzes
- Equations systematic analysis
- Interdisciplinary Project: Alexander Calder Mobiles

7th GRADE Science - Fall Semester, Unit 1

"The Science of Healthy Forests" -

Guiding Questions

1. How do Central Oregon forests function as ecosystems and interact with other ecosystems?
2. What role does fire play in a healthy forest of Central Oregon?
3. How are the species that live here adapted to their environment?
4. How do we use ecological concepts to guide land management and wildlife management decisions?

Anchor Text & Resources

Literature:

- Bend Bulletin and Oregonian newspapers
- "A Sand County Almanac" - Aldo Leopold
- Textbook - "Environmental Science"
- Various web resources for forest ecology, succession, forest management, and the role of fire in forests

Summary of Expedition

Seventh graders will use our local forests as a case study as they learn about ecosystems and species interactions. Students will be involved in a mix of class work and fieldwork, learning about our local forest ecosystems, how they function, how the forest interacts with other ecosystems, and how humans interact with the forest. Integral to this expedition will be an understanding of the food webs, species interactions, flow of energy, and adaptations of the plants and animals that live here. We will also spend considerable time examining the role of fire in the ponderosa and lodgepole forests of Central Oregon. Students will travel to the High Desert Museum to experiment and gain background information. After supporting this experience with some classroom learning, they will become field scientists at Ryan Meadow (along the Deschutes River) as they initiate a long-term monitoring project of the forest there, working with the USFS and Upper Deschutes Watershed Council. Their data will be shared online through StreamWebs and will be presented at the Student Watershed Summit in the spring.

State Standards and Classroom Learning Content

- Explain how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources (*species interactions, competition for resources, forest bioregions*).
- Explain the processes by which plants and animals obtain energy and materials for growth and metabolism (*food webs and energy flow, competition for resources*)
- Explain how ecosystems change in response to disturbances and interactions (*role of fire in forest structure; succession*)
- Analyze the relationships between biotic and abiotic factors in ecosystems (*collection of forest monitoring data*)
- Describe how environmental factors influence resource management
- Describe the environmental and social impacts of getting, using, and managing renewable and non-renewable resources
- Analyze the impact of human activity on environmental quality and sustainability of Earth systems
- Science Skill Standards - Scientific Inquiry (*design and conduct investigations; collect and analyze data; communicate results*) and Engineering Design (*define problem; design, test and propose solutions; collect relevant data and communicate results*)

Reading Comprehension Strategies

Determining Importance

Writing Traits

Ideas and Content
Word Choice

Fieldwork Learning Experiences

- High Desert Museum-
"Fired Up" fieldwork to learn about the role of fire in our forests (1 visit)

-Ryan Meadow
restoration and environmental education project - work with experts and collect of data for long term monitoring project (3 visits)

7th Grade Science - Fall Semester, Unit 2

"Birds of a Feather"

Guiding Questions

1. How smart are birds?
2. What adaptations do birds have that allow them to survive?
3. What birds live here, why do they live here, and when?
4. How do we monitor bird populations and what can this data tell us about the environment?

Anchor Text & Resources

Literature:

- Numerous bird field guides and reference books (Audubon, Sibley, Petersons)
- Various other bird reference books
- Science Textbook "Cells and Genetics"
- Read Aloud Book:

Summary of Expedition

Birds are a fascinating case study, as they are special in their appearance, habits, adaptations, behaviors, seasonal and daily movements, and habitat requirements. Students will study all of these facets of birds as they learn about classification, adaptations, and natural selection and evolution. We will examine historical studies of birds (Darwin and others) and study our local birds first hand. Students will assist with the instillation of bird feeders and birdhouses, both on our campus and in local natural areas, and they will begin a long-term monitoring and survey project. During the expedition, students will act as scientists and engineers - asking questions, collecting data, and seeking and testing solutions. Throughout our mix of classroom and field studies, students will work in conjunction with the local chapter of the Audubon Society, the High Desert Museum, and local bird experts.

State Content Standards - Classroom Learning Content

- Explain how genetics and anatomical characteristics are used to classify organisms and infer evolutionary relationships (*design birds, bird ID and classification, bird adaptations, bird evolution*).
- Explain how species change through the process of natural selection. Describe evidence for evolution (*Bird adaptations, Darwin's and modern bird studies*).
- Distinguish between inherited and learned traits (*bird behavioral studies*).
- Explain how individual organisms and populations in an ecosystem interact and how changes in populations are related to resources (*bird behavioral studies, bird surveys, migration patterns, global climate change, food webs*).
- Explain the processes by which plants and animals obtain energy and materials for growth and metabolism (*bird observation and food webs*).
- Science Skill Standards - Scientific Inquiry (*design and conduct investigations; collect and analyze data; communicate results*) and Engineering Design (*define problem; design, test and propose solutions; collect relevant data and communicate results*)

Fieldwork Learning Experiences

- High Desert Museum- Birds of Prey
- Sawyer Park Bird Monitoring
- Bird Feeder Observation on Campus
- Possible - Wildlife Refuge Winter fieldwork?
- Bird feeder and bird house installation, mapping, and monitoring

Reading Comprehension Strategies

Determining Importance
Visualization

Writing Traits

Ideas and Content
Word Choice

7th Grade Humanities, Fall Semester 2010

"Civil Rights"

<p>Guiding Questions:</p> <p>Who owns the land and what rights should landowners have? How are laws created and who are they created for? What are Civil Rights and who should have them?</p>	<p>Specific Disciplines:</p> <p>History/Gov't/Civics L.A. - Reading, Writing, Critical Thinking Art</p>
<p>Expedition Summary</p> <p>Through studying the Native Americans starting with the Trail of Tears, we will look at civil rights and the role they play in society in terms of way of life and cultural sustainability. We will study the history of the US through the experiences of the Native Americans by incorporating lessons on the branches of the government and how they work to create laws. We will explore the idea of trust and promise as well as the idea of land ownership and what that means. An immersion putting the students in the role of misunderstanding and being misunderstood will launch the expedition. Through a case study on the forced relocation of 10's of 1000's of Native Americans starting in 1831, we will discover how the land laws are made and how they were, and can be, broken by the lawmakers themselves. Taking a close look at the presidency of Andrew Jackson and how he changed the face of history with both his emphasis on the Second Party System and the signing of the Indian Removal Act we will discover how this era drastically changed the place and role of Native Americans in American society. We will work our way through the century as the west was settled by European descendents, putting continuing pressure on Native Americans civil and land rights, which in turn affected the fabric of their culture. Using the James Fenimore Cooper classic, <i>Last of the Mohicans</i> as an anchor text, we will explore historical fiction written of this era and compare it to knowledge gained through primary documents.</p>	
<p>Anchor Texts</p> <p><i>Primary Documents:</i> treaties, US Constitution, <i>Short Stories:</i> <u>This is What it Means to Say Phoenix, Arizona</u> by Sherman Alexie, <u>Story B</u> by unknown, stories from <u>Walking the Choctaw Road</u> by Tim Tingle <i>Novels:</i> <u>Last of the Mohicans</u> (Classic and Graphic Novel)</p>	<p>Concepts</p> <p>Persuasive, expository and reflective writing. Summarizing, inferring, predicting and analyzing subtext.</p>

Grade 7A Math, Winter/Spring Semester

Proportional Reasoning

Summary of Expedition:

Proportional Reasoning will be the common theme of the semester and will be used to solve problems in the geometry, algebra and number & operations strands. Explorations will involve two- and three-dimensional shapes, negative numbers, ratios and unit rates, helium balloons, and the gears on a bicycle!

Guiding Questions:

- How many/what size helium balloons would it take to lift me off the ground?
- Why is it that I'm pedaling so fast and moving so slow?
- If I could double the length and width of my locker, I could fit twice as much stuff inside it, right?

Unit Learning Targets - I can...

1. Model and explain formulas for perimeter and area of circles and polygons. Use formulas to solve problems.
2. Model & explain formulas for surface area & volume of pyramids, cylinders, and cones. Solve various problems.
3. Determine the area and volume of complex or irregular shapes by dividing them into basic shapes.
4. Apply scale factor to analyze how the change in one measure (length, area, volume) affects another.
5. Apply scale factors and proportional relationships to solve problems, including similarity and congruence.
6. Represent proportional relationships with tables and as lines on a graph with slopes equal to a unit rate.
7. Use tables, graphs, and equations to distinguish proportional relationships from other relationships.
8. Write and solve linear equations in two variables.
9. Convert among different units of measurement to solve problems, including rates.
10. Model and explain procedures to compute and solve problems with positive and negative integers.
11. Apply proportional reasoning to solve problems including percent and simple probability.

Learning Targets that Remain Consistent throughout the year

I can...

- 9) Use precise mathematical vocabulary.
- 10) Explain my thinking. This may include solving problems in more than one way.
- 11) Work cooperatively. This means that during group/partner work, I share my ideas, listen to others' ideas, and compromise.
- 12) Complete my work and turn it in on time.

Assessment:

- Classroom investigations, activities experiences
- POWs, Problem sets, & Quizzes

Resources:

*Navigating through Number & Operations in Grades 6-8, NCTM
Mathematics: Applications and Connections, Glencoe McGraw-Hill
Balloons over Bend
Vulture Cycles*

Grade 7B Math, Winter/Spring Semester

Unit: Apples to Apples

Guiding Questions:

- How do people use proportional reasoning to better understand the past, present, and predict the future?
- If lines could talk what would they?
- How is it possible to do more with less?

Resources & Technology:

- Geogebra & Google Sketchup
- iPod touch graphing calculator
- Balloons over Bend
- It's not about the Bike, by Lance Armstrong
- A Brief History of Pi and Phi
- Bike Barn and Wade

Summary of Expedition:

Students use proportional reasoning to answer real-world questions such as...How does mark-and-recapture help scientists establish population estimates? How did mathematicians estimate the number of Nazi tanks during WWII? How does scale factor influence the area of 2D shapes and the volume of 3D solids? Are we Golden? and How do gears influence the cadence of a bicyclist, their effort, and the distances and times in which they travel?

Unit Learning Targets - I can...

12. Model and explain formulas for perimeter and area of circles and polygons. Use formulas to solve problems.
13. Model & explain formulas for surface area & volume of pyramids, cylinders, and cones. Solve various problems.
14. Determine the area and volume of complex or irregular shapes by dividing them into basic shapes.
15. Apply scale factor to analyze how the change in one measure (length, area, volume) affects another.
16. Apply scale factors and proportional relationships to solve problems, including similarity and congruence.
17. Represent proportional relationships with tables and as lines on a graph with slopes equal to a unit rate.
18. Use tables, graphs, and equations to distinguish proportional relationships from other relationships.
19. Write and solve linear equations in two variables.
20. Convert among different units of measurement to solve problems, including rates.
21. Model and explain procedures to compute and solve problems with positive and negative integers.
22. Apply proportional reasoning to solve problems including percent and simple probability.

Ongoing Learning Targets - I can...

- A. use mathematics to solve problems in a variety of real world applications
- B. understand that mathematics is a human endeavor pursued by people the world around
- C. appreciate the role of curiosity, discovery, and imagination in mathematics
- D. develop confidence in my ability to continue the study of mathematics
- E. use precise mathematical procedures and language including symbols, notation, and different forms of representation
- F. reflect critically upon my work and the work of others to include: showing work, communicating methods, explaining the reasonableness of an answer, and suggesting improvements
- G. use a quiver of mathematical technology tool

Assessment:

- Classroom investigations/activities/experiences
- POWs, Problem sets, & Quizzes
- NCTM Geometric pattern puzzles with tabular, graphic, and algebraic forms.
- Big Lake Snow Cave Design Competition
- Bicycles, Gear Ratios, and Human Physiology

7th Grade Humanities Winter/Spring Semester 2010:

"Civil Rights and Civil Discourse"

<p style="text-align: center;">Guiding Questions</p> <ul style="list-style-type: none"> • What are civil rights and who gets them? • What does it mean to have civil discourse? • What part does civil discourse play in a democracy? • When it comes to civil rights, is there room for discourse? 	<p style="text-align: center;">Specific Disciplines</p> <ul style="list-style-type: none"> • History/Gov't/Civics • L.A. - Reading, Writing, Vocabulary, Critical Thinking
<p>Expedition Summary</p> <p>This semester we will delve into the issue of the over-all idea of civil rights in this country - how civil rights can legally be denied, how they are achieved, and what we are currently struggling with concerning civil rights for all. We will start the semester with literature circles. Students will choose one of four different books with the theme of civil rights, which they will read and discuss in structured literature circles. We will then move on to some of the landmark civil right successes and what part civil discourse played in winning those rights. We will study basic ground rules for civil discourse, the elements of an argument, and the importance of seeing and respecting different perspectives. Engaging in civil discourse within the classroom, students will learn discourse skills as well as experience real-life discussions on civil rights issues through role-playing, debates and Socratic seminar. They will use these discourse skills to write a persuasive composition on a current civil rights issue of their choosing. We will be continuing our literary letters on student-choice SSR books, researching and decision making for our Community 101 granting project, and Word Market as vocabulary building and spelling practice.</p>	
<p>Anchor Texts</p> <p>Literature Circle Texts:</p> <ul style="list-style-type: none"> - <u>Stuck Rubber Baby</u> by Howard Cruse - <u>A Farewell to Manzanar</u> by Jeanne Wakatsuki Houston - <u>Lyddie</u> by Katherine Paterson - <u>No Choir Boy</u> by Susan Kuklin (honors) - <u>Claudette Colvin: Twice Toward Justice</u> by Phillip Hoose <p>Standards: Social Studies</p>	<p>Concepts</p> <p>Persuasive, expository and reflective writing. Summarizing, inferring, predicting and analyzing subtext. Critical thinking, organization of ideas and strategic argument.</p>

7th Grade Humanities Winter/Spring Semester 2010: "Civil Rights and Civil Discourse", part 2

Standards: Language Arts and Social Studies

Vocabulary: Increase word knowledge through systematic vocabulary development; determine the meaning of new words by applying knowledge of word origins, word relationships, and context clues; verify the meaning of new words; and use those new words accurately across the subject areas.

Writing: Planning, Evaluation, and Revision: Pre-write, draft, revise, edit, and publish across the subject areas.

Writing: Communicate supported ideas across the subject areas, including relevant examples, facts, anecdotes, and details appropriate to audience and purpose that engage reader interest ; organize information in clear sequence, making connections and transitions among ideas, sentences, and paragraphs ; and use precise words and fluent sentence structures that support meaning.

Writing Applications: Persuasive Writing (4-HS): Write narrative, expository, and persuasive texts, using a variety of written forms—including journals, essays, short stories, poems, research reports, research papers, business and technical writing—to express ideas appropriate to audience and purpose across the subject areas.

*Suggested word length: Seventh Grade, 400-700 words.

Listening: Listen critically and respond appropriately across the subject areas.

Civics/Govt: Understand how government is influenced and changed by support and dissent of individuals, groups, and international organizations.

Civics/Govt: Analyze the concepts of political power, authority, conflict, and conflict management.

Social Science Analysis: Analyze the concepts of political power, authority, conflict, and conflict management.

7th Grade Science Winter/Spring Semester 2010

Cells, Plants and Genetics

<p style="text-align: center;">Guiding Questions</p> <ol style="list-style-type: none">1. What are cells and how do they work?2. How are plants organized (what is their structure and function)?3. How are traits inherited (passed from parent to offspring)? How can we predict the patterns of inheritance of traits?4. How does the study of genetics impact modern society and how will it affect my future?	<p style="text-align: center;">Anchor Texts & Resources</p> <p><i>The Biology of Belief</i> by Bruce Lipton Science Texts – <i>From Bacteria to Plants; Cells and Heredity</i> Various web sites for information on genetics issues NPR, NOVA</p>
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Summary of Expedition

Students will look through the lenses of interaction and change and the connection between structure and function as they explore cells, plants, genetics, and evolution. After learning the basics of cell structure and function, students will be involved in two long-term plant studies, growing plants in the classroom as part of a controlled scientific experiment. This study will help us examine genetics and patterns of inheritance, plant structure and function, science history, and good experimental design and execution. In a related strand, we will explore the “how” of genetics – DNA, mitosis, and sexual reproduction. Students will also research a modern genetics issue in order to see the “society” perspective of science. In the spring, we will examine human biology – both the evolution of humans and the functioning of the human body

<p style="text-align: center;"><u>Classroom Learning Content</u></p> <ul style="list-style-type: none">-Cell structure and function-Photosynthesis as a chemical process (including the basics of chemical formulas)-Classification of organisms (Taxonomy)-Plants’ structures (roots, stems, leaves, flowers) and their functions-Plant tissues (xylem, phloem, pith, stoma,...) and their functions-Sexual reproduction, studied at the cellular level (DNA recombination) and with plants (pollination, fertilization, fruit and seed development)-Inheritance of traits in offspring-Prediction of patterns of inheritance (Punnett squares)-Structure of DNA and the history of its discovery-Current genetics issues in society (stem cell research, cloning, genetic alteration/enhancement)-Experimental design and data collection, organization, and analysis-Observation and measurement (metric – distance)	<p style="text-align: center;"><u>OR State Standards</u></p> <ul style="list-style-type: none">-Compare and contrast the types and components of cells.-Describe the functions and relative complexity of cells, tissues, organs, and organ systems.-Describe the relationships and interactions between and among cells, tissues, organs, and organ systems.-Compare and contrast sexual and asexual reproduction.-Explain why reproduction is essential to the continuation of every species.-Distinguish between inherited and learned traits, explain how inherited traits are passed from generation to generation, and describe the relationships among phenotype, genotype, chromosomes, and genes.-Explain how organelles within a cell perform cellular processes and how cells obtain the raw materials for those processes.-Explain the processes by which plants and animals obtain energy and materials for growth and metabolism.-Explain how genetics and anatomical characteristics are used to classify organisms and infer evolutionary relationships.-Explain how species change through the process of natural selection. Describe evidence for evolution.
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Major Projects/Products:

- 1- In a study that mirrors Gregor Mendel’s genetics study, students will grow two generations of plants in the classroom, observe characteristics of plants, and predict ratios of observed characteristics in the F₂ and F₃ generations. They will also design their own plant study designed to test the needs of plants.
- 2- Students will research a controversial genetics subject, prepare notes, and participate in a Socratic seminar where they converse with students who have researched the same topic (e.g. cloning, GMO’s, stem cell research, genetic enhancement).