Change

An Interdisciplinary Unit

"Be the change you want to see in the world."-Ghandi

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Introduction and Rationale

The theme for this interdisciplinary unit is, “Change: Resistance vs. Inspiration.” There are two essential questions: “What happens when something resists change?” and “What inspires change?”

Change is central in the lives of adolescents so this topic will likely be of interest to them. We also hope that the unit inspires them to want to make positive changes for themselves and their community, and will culminate the unit with a community service project.

Our theme of change is both broad and meaningful. It fits in well with many of the Massachusetts learning standards so it can easily encompass all of the content areas and the unified arts. In addition, there is ample room for students to drive the curriculum, something we hope will be a major component of the unit.

We want this unit to be driven by the students; for the students to be actively engaged throughout the process creating knowledge cooperatively and individually. The theme for the unit is also designed so that teachers have flexibility with their curriculum and with selecting the concepts, materials and content that the students will learn.

We anticipate that this theme will be carried out throughout the entire academic year. Everything will be connected to the idea of change and these connections will be explored frequently. In our plan, we will describe a smaller unit in each content area related to the theme and how we plan to address the theme throughout the year.

Description of Group to Be Taught

This unit will be taught to eighth grade students. Each heterogeneous class has 24 students including several students with 504s and IEPs. There are three classes on the team and the schedule is flexible.

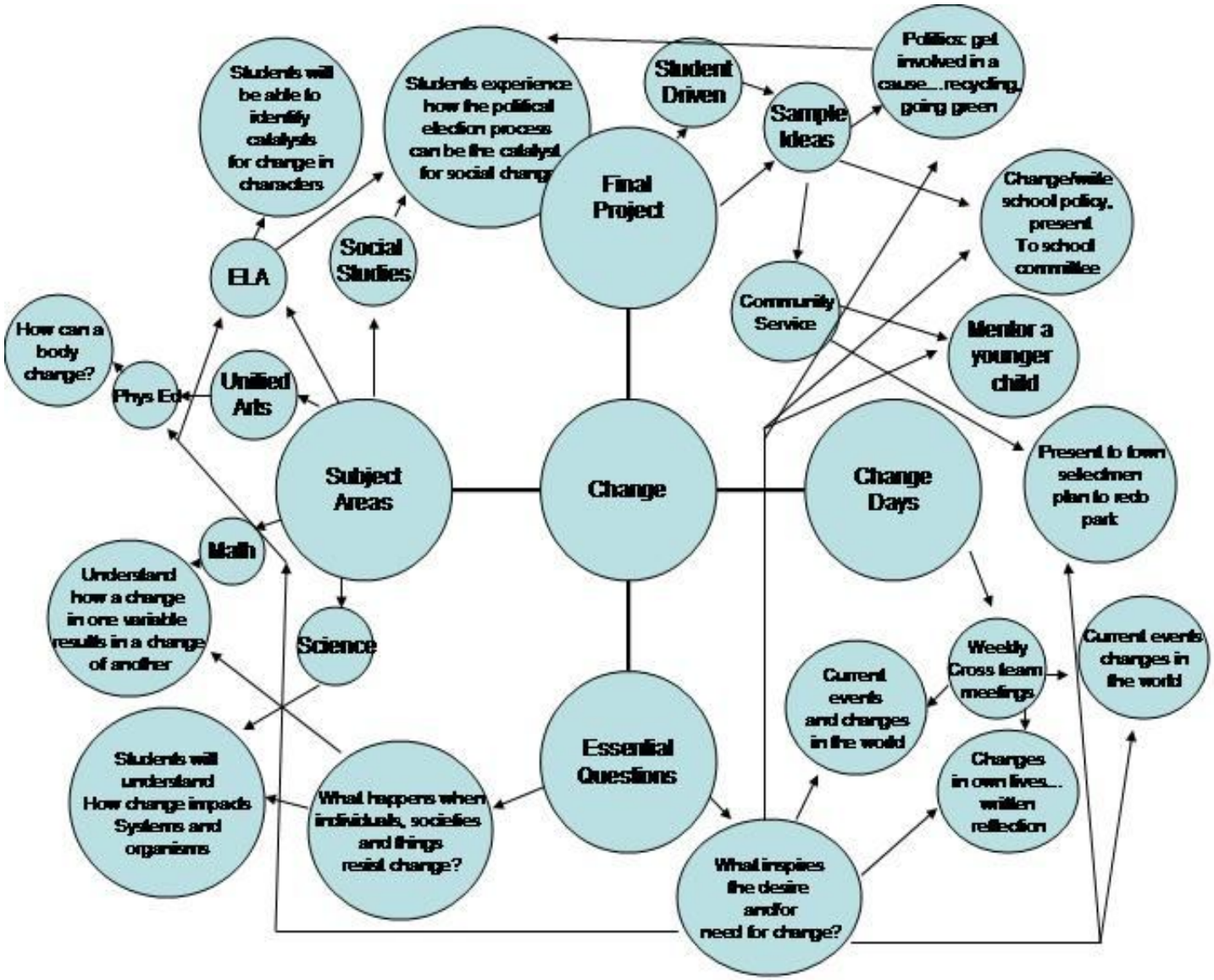
Unit Overview

Students will work to explore the question "what inspires things, people and societies to make major change?" This work will take place not only within individual subject areas, but also across the team as a whole.

In each subject area in the beginning of the year, students will complete a unit from 3-6 weeks based on the concept of change. This will introduce students to the idea and provide a common base of knowledge. Teachers will continue to address the concept of change throughout the year. Midway through the year, students will determine an idea for their final project. Essentially, students will select something that they want to change, either collectively or individually, create a plan, and work throughout the year to bring about the change. For example, a group of students may choose to give a local park a makeover, or an individual student may seek to change a school or town policy. The key is that the students drive the project; this causes the learning experience to become more meaningful to them leading to more successful overall.

Finally, throughout the year in order to fully reinforce the topic and to allow for the theme of change to fully develop, we will incorporate theme days, called "Change Days" as a team weekly. The entire team will come together to do some type of work related to the theme. For example, one day students may write a reflection regarding changes in the world they noticed during the week. Another week, students could role-play an activity where they inspire a positive change. As the year continues on, students will work on their final project during this time. This common team time is a key element to the integrated nature of this unit.

Concept Map


Students will be able to identify catalysts for change in characters
Students experience how the political election process can be the catalyst for social change
Student Driven
Politics: get involved in a cause....recycling, going green
Sample Ideas
Final Project
Change/write school policy, present To school committee
Social Studies
ELA
Community Service
Mentor a younger child
How can a body change?
Phys Ed
Unified Arts
Subject Areas
Change
Change Days
Present to town selectmen plan to redo park
Math
Understand how a change in one variable results in a change of another
Science
Current events changes in the world
Weekly Cross team meetings
Current events and changes in the world
Essential Questions
Students will understand How change impacts Systems and organisms
What happens when individuals, societies and things resist change?
Changes in own lives... written reflection
What inspires the desire and/or need for change?

Habits of Mind

This unit on "change and inspiration" addresses the habits of mind in the following ways:

Finding and keeping focus:

The universal theme of change, resistance and inspiration built in to this unit will keep students focused.

The questions asked in the core subjects and unified arts lessons of the unit will help students find and maintain their focus.

Asking good questions:

By asking good questions in this unit we are confident that our students will in turn ask good questions and look for the appropriate answers.

Good questions that require students to use higher order thinking skills, do not have yes or no answers, and elicit even more thought provoking questions.

Simplifying questions and problems:

We will use this unit to present simplified questions and problems to students hoping to encourage self driven inquiry.

Being attentive:

Students demonstrate being attentive by staying on task in all classes and keeping up with the readings and assignments.

Students work toward reaching goals as they participate and log science experiments.

Seeing anomalies:

Students see the differences in how our government has developed over time.

Students experience how different influences affect outcomes in math and science.

Thinking fluently and flexibly:

Thinking fluently and flexibly will lead students to uncover the themes of the novels in ELA.

Students support their interpretations of the readings reciting evidence from text.

Students think through the functions and systems of physical growth.

Forming hunches:

In Social Studies predicting who will win the election.

In ELA students will form hunches about main characters.

Students form hunches as they work through problem solving in math.

Students form hunches while performing science experiments.

Designing tests and experimenting:

Students are allowed choices of assessment formats in ELA and social studies.

Students solve math problems.

Students perform many varied experiments in the science unit.

Students develop their own nutritional and physical education plan.

Searching for patterns:

In social studies students analyze the polling data.

In ELA students search for patterns related to character development.

In mathematics students look for patterns while problem solving.

In science students identify patterns revealed through experimentation.

Students watch for the patterns and sequences associated with physical development.

Using models and metaphors; thinking by analogy:

The clay molding activity included in the engaging activity lesson.

Students relate changes in themselves to the changing seasons.

Taking risks:

Getting involved with a political campaign and ending up with a winning or losing candidate.

Students work to solve problems and provide answers in mathematics.

Students learn about the risks associated with not having a good nutritional and physical education plan.

Cooperative and collaborating:

The activities included in the unit require different levels of cooperation and collaboration for all the cores and the unified arts.

The contributions students make to political campaigns and the election center takes a collaborative effort.

Students participate in group literacy circles in ELA.

Students work in groups to perform science experiments.

Competing:

The students experience a sense of competition in the social studies unit as they choose and support a party affiliation and politician.

Challenges:

Students are challenged in many ways throughout the unit in the core subjects and the unified arts.

Students are asked to think about things in new ways as they relate to the unit theme of change and inspiration.

Students challenge themselves as they work toward better nutritional and physical health

Persevering and having self-discipline:

Students are held accountable for completing lesson tasks on time.

Students will be required to use allotted class time purposefully and dutifully.

Students must display a level of self control and measured incremental progress to demonstrate they are responsibly engaging in self directed inquiry.

Engaging Activity

Lesson title **Life is change, growth is optional, choose wisely.** ***Clark***

Length **(1 to 2)** ***45 minute blocks***

Instructional Objective

Cognitive: Students are asked to think about change from a few different perspectives, change as a universal theme as it relates to personal and educational growth. Students are asked to think of themselves as life long learners and as individuals who will embrace change.

Affective: Students gain new perspectives on the ideas of change. Students identify what changes they have personally experienced and whether those changes were internally or externally induced or influenced. Students reflect on changes that have affected them that they had no control over. Students contemplate about what personal changes they would like to make.

Skill: Students analyze the Darwin quote for meaning and relevance.
This lesson could be used as the introduction of new group roles structure.
Students compare and contrast how the changing of seasons is like their own seasons of personal growth and change.
Students work with clay as a metaphor to understand the physical manifestation of change.

Procedures: Share Darwin quote with students

Teacher facilitates discussion on the changing of the four seasons. (See talking points document attached)

Display picture of four seasons

Pass out molding clay

Assessment: Students share in small group and class discussions. Student participation in the clay molding activity and discussion.. .

Homework: Write one paragraph (5 to 7 sentences) about someone you know who is open to change and another paragraph about someone who is resistant to change.

Teacher Discussion Notes:

Classroom discussion using Darwin quote:

"It is not the strongest of the species that survives; nor the most intelligent; it is the one that is most adaptable to change."

What do you think Darwin meant by that?

Introduce 4 seasons poster:

On a t-chart list the answers to the following questions.

Students could answer these questions in their groups first.

What is unique about the seasons? What is unique about you?

What drives the changing of the seasons? What drives changes in you?

What forces influence the seasons? What forces influence you?

Can anything stop the seasons from changing? Can you control change in your life?

If change is inevitable then how can we facilitate and accept change in our lives?

Wrap up question:

What is it about yourself you would change if you could?

Introduce Clay

In their groups students are asked to mold the clay into something that represents change in some way.

Thoughts to ponder:

How are we as individuals molded?

Do you think people are like clay in that some of them can change and be "remolded" and others are "molded" in into what they are and will never change?

Wrap up questions and closure.

What type of person are you, one who is open or resistant to change?

What can you do to become or continue to be a person who embraces change?

Change Day

Throughout the school year, one day per week will be a dedicated team day called Change Day. The format of the day will vary as needed, but this day will be a chance to make continual connections to the ongoing theme in addition to those outlined in the subject units. This will also be a day to bring in other real-world connections to the theme of change, which will hopefully help inspire final project ideas. This day will also be a dedicated opportunity for students to direct their own learning either by expanding on a topic covered in class or by exploring a new topic.

As part of the theme, on these days students will be encouraged to change classes, class groups, and social groups. At lunch, students will be encouraged to sit with someone new. When choosing the day's studies, they will be encouraged to change what they do by exploring as many different areas in as many ways as possible.

Class meetings will be held to talk about current events and how they relate to the major unit questions about resistance and inspiration. After initial modeling, students will be expected to provide the materials and lead the discussions. Class meetings will also be held to connect academic studies to the major theme.

Teachers will be assigned to rooms based on resources. For example, one teacher will be assigned to a room with appropriate technology for those students who need computers or other electronic devices. One teacher may be assigned to a large, open room for students who are working on something that requires space. Teachers will be expected to be able to help students explore topics using all of the disciplines.

Students will also use this time to reflect on their developing thoughts about change, to formulate ideas about ongoing projects and their final project, and to get feedback from teachers and students. Students will make regular reports about their change day activities.

This day is designed to be interdisciplinary, real-world based, open-ended, and student driven. The teachers will serve as guides and set the tone at the start of the year, but the format of the day and the expectations will evolve as needed.

Mathematics Unit

Unit adapted from "Living Algebra, Living Wage" from Rethinking Schools Vol. 21 No.4

Grade: 8

Classroom setup: Students will be in groups of four, sitting at tables. Students will use the following group roles: getter, recorder, starter, reporter

Overview and Rationale:

The theme of change is easily incorporated into math and will be explored throughout the year. One of the major ways that change is explored in mathematics is through the concept of functions. This will be the focus of the math unit described here.

In this unit, students will be introduced to linear functions through an exploration of the minimum wage. Middle school students are more successful when their learning is connected to the world around them so the real-world context is appropriate. Because the topic of minimum wage is also a major issue in society, this unit may also provide inspiration for students' final projects.

MA Standards:

8.P.4 Create and use symbolic expressions and relate them to verbal, tabular, and graphical representations.

8.P.5 Identify the slope of a line as a measure of its steepness and as a constant rate of change from its table of values, equation, or graph. Apply the concept of slope to the solution of problems.

8.P.6 Identify the roles of variables within an equation, e.g., $y = mx + b$, expressing y as a function of x with parameters m and b.

8.P.7 Set up and solve linear equations and inequalities with one or two variables, using algebraic methods, models, and/or graphs.

8.P.8 Explain and analyze—both quantitatively and qualitatively, using pictures, graphs, charts, or equations—how a change in one variable results in a change in another variable in functional relationships, e.g., $C = \pi d$, $A = \pi r^2$ (A as a function of r), $A_{rectangle} = lw$ ($A_{rectangle}$ as a function of l and w).

8.P.10 Use tables and graphs to represent and compare linear growth patterns. In particular, compare rates of change and x- and y-intercepts of different linear patterns.

Enduring Understanding:

A relationship is linear if there is a constant rate of change between the two variables.

Essential Questions:

How can an equation express a relationship we see in the everyday world?

When two related quantities change, how can you tell if the change is predictable?

How can a graph made from a table of specific values help us predict other values?

Can graphs help us predict changes between related values if the relationship is not linear?

What kinds of everyday problems can be solved by using graphs, equations, and tables?

What is a function?

Lesson One

Objective: to determine what a fair wage is

Materials: student response notebooks

Procedure:

1. Students will be presented with the following statements:
    a. Those who work should be paid.
    b. No one who works full time should live in poverty.
    c. Wages should be high enough to support a family on one income.
    d. The legal minimum wage should be high enough to get by.
2. Students will write whether they agree or disagree with each statement. After responding individually, students will discuss their responses in their groups and come to a group consensus.
3. The teacher will lead the group in a discussion. One statement at a time will be discussed. Each group's reporter will give the group consensus and then all students will have a chance to respond.
4. Students will be asked to guess the minimum wage. Once all the students have written a guess, the teacher will reveal that the federal minimum wage is $5.85 per hour. Students will be given a chance to respond.
5. The teacher will introduce the unit and inform the class that they will be using algebra to study minimum wage.
6. Students will answer the following question in their math journal: Do you think the minimum wage is reasonable? Justify your answer.

Assessment:

Informal observation of group discussion; Journal response

Lesson Two

Objective: to graph linear relationships

Materials: sets of 4 job cards that represent jobs in the community (1 set for each group); overhead projector and a blank grid transparency; graph paper; rulers; student response journals

Procedure:

1. Students will be given the job cards. In their groups, students will read the cards aloud and will try to determine the hourly wage for each job. The teacher will walk around to answer questions and check on groups.
2. After the discussion, students will be given the approximate hourly wage (rounded to the nearest dollar) for their jobs. In their notebooks, students will write about whether the actual wage matched their expectation.
3. The teacher will use the overhead to model how to create a graph of wages for each job. The x-axis will be hours; the y-axis will be dollars.
4. Groups will then graph each job's wages on one graph.
5. Students will answer the following question in their journals: What can you tell about each job by the graph your group created? Justify your answer.

Assessment:

Informal observation of group discussion; graph accuracy; journal response

Optional for students: Bring in a job description and hourly wage that you would like to look at more closely.

Lesson Three

Objective: to understand slope

Materials: previous day's graphs; student response journals

Procedure:

1. Students will respond in their journals to the following prompt:

   How does the rate of pay affect the shape and steepness of the lines on your coordinate grid? Describe the shape of a graph for the wage of $20 dollars an hour. Describe the shape of a graph for the minimum wage of $5.85 an hour.
2. After students have responded individually, they will discuss the prompt in their groups. Students may also discuss their answers from the previous day.
3. The whole class will discuss their findings, leading to the introduction of the terms slope, linear, and coefficient. Students will learn that the coefficient of x determines the steepness of the line.
4. Students will use the job descriptions they brought in to practice graphing and determining slope.
5. Students will complete the following the following journal entry:
   a. What did you learn today?
   b. What did you like or dislike about class today?
   c. What do you still have questions about or want to learn more about?

Assessment:

Informal observation of group discussion; graph accuracy; journal response

Lessons 4-7 :

Students will be spending additional time learning to recognize linear patterns and working between tables, graphs, and equations. Any questions or extensions that came up through group discussion or journal entries will also be addressed at this time. Once students are comfortable with linear relationships, the class will move on to the next lesson.

Lesson 8:

Objective: to identify the role of variables in an equation; to understand how a change in one variable results in a change in another variable

Materials: sets of 2 job cards (enough for all pairs); PBS video "Waging a Living"; TV and DVD player; student response journals

Procedure:

1. Students will watch a clip from "Waging a Living" in which a security guard discusses his struggle to get by. They will respond to the clip in their journals and then discuss in their groups.

2. Students will be presented with a problem involving the costs of a new job. Pairs of students will be given two different scenarios in which they have landed a new job that requires buying a uniform. Students will determine how many hours of work at the new job would be required to pay for the uniform.

3. Students will compare answers with their partners and then discuss as a whole class.

4. Students will respond to the prompt: Choose an expensive item that you recently acquired. Using the federal minimum wage, determine how many hours you would have to work to pay for that item. What do you think about your results?

Assessment:

Informal observation of partner work; journal response

Lesson 9:

Objective: to find affordable housing

Materials: classified section of the newspaper (or internet access to online classifieds); "Happenings" cards; PBS video "Waging a Living"; TV and DVD player; student response journals

Procedure:

1. Students will watch a clip from "Waging a Living" regarding finding affordable housing. They will respond to the clip in their journals and then discuss in their groups.

2. Students will be given classified ads and jobs and instructed to find affordable housing with their group. As students work, they will be given cards with scenarios that either provide or take away money to factor into their decision.

3. The teacher will facilitate a discussion about the group activity.

4. In their journals, students will respond to the prompt: What happens in families when there's not enough money? What can happen in a family that makes it so there isn't enough money?

Assessment:

Informal observation of group work; journal response

Lesson 10:

Objective: to determine the number of hours needed for various expenses

Materials: expenses cards; student response journals; graph paper

Procedure:

1. The teacher will facilitate a discussion about the previous day's journal entry.

2. Students will be given various expense cards. They will work in their groups to determine how many hours need to be worked to cover those expenses.

3. Students will graph their results. Groups will present their graphs to the class. 4. Students will be given one large problem to complete independently. They will be given a list of expenses and will need to determine how much money they would need to make per hour in order to afford those expenses within a given time frame.

5. In their journals, students will respond to the prompt: Based on your work so far, what do you think is a reasonable minimum wage? How does your suggestion compare to the actual minimum wage? Why might that be?

Assessment:

Informal observation of group work; presentation; independent problem; journal response

Lesson 11:

Objective: to understand y-intercept

Materials: living wage information for school community; graph paper; overhead projector and graph transparency

Procedure:

1. Students will use the wage information for their community to determine how many people in a household would need to work at minimum wage in order to support a family. The class will discuss.

2. Students will learn about y-intercept by graphing a pay minus expenses equation. The teacher will model this and then students will work in their groups to graph their work from the previous day.

3. Students will respond to the prompt: Attack or defend: The minimum wage is high enough. Students will write a rough draft which will later be turned into a major assignment.

Assessment:

Informal observation of group work; graph accuracy; journal response

Remainder of Unit: Students will explore other real-world examples of functions as they continue to learn the mathematics in more detail. One of their major assignments will be to write an opinion paper on the minimum wage using solid mathematical evidence to support their opinion. This assignment will be in conjunction with the ELA teacher.

English Unit

During this four- week unit, students will work in literature circles to read and analyze a text focusing on character change. Prior to the unit, students will read the short story "Utzel and Poverty" to learn about catalysts for change and to learn annotation skills. Additionally, students will either write a personal narrative or a fictional short-story that contains a clear catalyst for change.

Within each group, literature circle roles will switch each week, with the exception of the Journal Keeper, which everyone will complete individually every week.

The students' work each week, during class (workshop days) and at home, will be driven by the literature circle discussion question they have to complete for the upcoming literature circle day and their group roles. During the literature circle day, groups will take turns sharing their work. Students will individually annotate while reading in order to complete their journal, perform their role and to complete the task for the week. Additionally, there will be one hot seat day, where people will take on the role of a character and be asked questions prepared by the class.

The materials below focus on the novel *The Giver*, by Lois Lowry. However, any novel where the protagonist changes can be substituted, although the discussion questions will have to be altered.

MA State Standards

2.4 Integrate relevant information gathered from group discussions and interviews for reports.
8.25 Interpret a character's traits, emotions, or motivation and give supporting evidence from a text.
11.4 Analyze and evaluate similar themes across a variety of selections, distinguishing theme from topic.
19.22Write and justify a personal interpretation of literary, informational, or expository reading that includes a topic statement, supporting details from the literature, and a conclusion.

Assessments

Reading Comprehension:

- Open response questions
- Reading journal and sticky notes
- Hot Seat

Writing:

- Journal

Understands

- In novels and in life, there are catalysts that affect change in people and societies.
- Understanding a character's changes will often lead you to the novel's theme.
- Novels can take you to places you've never been, they can tell complicated stories, and they can delve deeply onto the lives of characters.

Able to do

- Students will be able to analyze a character's changes through a novel and identify the theme as it relates to those changes.
- Students will be able to support their interpretations using evidence from the text.

Unit Schedule: The Giver

Day 1 Introduction of Unit *Group Members* *Role Assignment* *Book Distribution*	**Day 2** Introduction of Unit *Discussion Question* *Personal Success Plan* Workshop	**Day 3** Workshop	**Day 4** Workshop	**Day 5** Workshop
Day 6 Workshop	**Day 7** Workshop	**Day 8** *Literature Circle #1 and Role Sharing* Pages: 1-64	**Day 9** Workshop	**Day 10** Workshop
Day 11 Workshop	**Day 12** Workshop	**Day 13** Workshop	**Day 14** *Literature Circle #2 and Role Sharing* Pages: 65 – 138	**Day 15** Preparation for Hot Seat
Day 16 Hot Seat	**Day 17** Workshop	**Day 18** Workshop	**Day 19** Workshop	**Day 20** *Literature Circle #3 and Role Sharing* Pages 139-end

Group Roles

Instructions: Roles one through four will rotate each week—you will get a turn to do at least three of the roles. Everyone will do role five each week.

1. **Jonas' Scrapbook Keeper**— you will be given Jonas' scrapbook, and in it you will record the major milestones in Jonas' journey. To do this, you will draw a "photo" of something that happened to Jonas, create or attach an artifact that represents his experiences, and include captions for each item that explain why this event was so important to Jonas. This should be in the form of a direct quotation from the novel and will be neatly written on the scrapbook page or pasted from a word document.

2. **Theme Tracker**- **"What does it mean to be human?"** *The Giver* asks this question of its readers: *"What is it that we need as human beings to live a fulfilling and meaningful life?".* Jonas' society is "perfect", but the people who live there are missing out on very important parts of life. This is an important theme of the novel (or what Lois Lowry would like you to think about and learn about as you read). As the theme tracker, you will keep track of where in the novel Lois Lowry is giving you information about this theme, and you will post a blog on a community note board on-line about your ideas from the reading. You will be communicating with other students from both your class and others. Your post should include two to three specific quotations from the text, your explanation about why you think it develops the theme for the novel, some commentary on other's analysis, along with your name and date that you post.

3. **Societal Researcher**- In *The Giver*, Lois Lowry has created a society from her imagination, however there are some similarities to real governments in our world today. As the Societal Researcher, you will choose one type of government to research and then you will summarize it's history in the world and defining characteristics for your group. The different governments that you may choose to research are: Democracy, Communism, Dictatorship, Utopia, or Theocracy. You will record your findings in the group's Encyclopedia of Historical and World Governments. Be sure to include all of the information that the template asks for.

4. **Literary Luminator**—You will be in charge of selecting four passages from the text that you believe are interesting, puzzling, powerful, or examples of effective literary

devices (metaphor, imagery, symbolism). Using the sketchbook, you will fill four pages, each with the passage that you choose to share with your group (exact words from the text with the page numbers included, may be typed or hand-written) along with an image or piece of artwork that represents the essence of the passage to you. You should be prepared to share your choice with the group.

5. **Journal Keeper**- Every week, each group member will take on the role of Jonas throughout the book. You will write a diary/journal entry in the first person representing Jonas and his changes throughout the novel. Each entry must include specific references to the text as well as quotes.
   - In the opening section of the journal, in character as Jonas, you will introduce yourself to the diary by explaining how you feel about living in your community as well as some of the new events that are impacting your life.
   - The second entry will detail how you are changing due to new role you play in your community
   - The last entry will detail your final decisions, why you made them, and your thoughts after the reader leaves you at the end.

Societal Research Report

Name _____

Date:

Government Type _____

CHARACTERISTICS

What are the defining characteristics of this kind of government? Think about the following questions as you research:

- Who holds power? Is it shared? How do people come to power? Are there regular elections? What are the rights of the citizens of the government?
- What do the members of this kind of government believe in? Is the government designed for equality? Is it created around an economic belief or religious belief?

HISTORY

What is the history of this kind of government? When and where did it exist? Does a form of this government exist today? Who are famous founders or political leaders that are associated with this government? Was or is it a successful form of government?

ANALYSIS AND COMMENTARY

What is your personal opinion of this way of governing a society? Would you like to live in this kind of government? Why or why not?

CONNECTIONS TO *THE GIVER*

Does this kind of government seem to be similar or different than the world that Jonas lives in? Maybe it shares a few of the characteristics? Describe the connections (or non-connections) that you see between Jonas' community and this form of government.

Personal Success Planning Sheet: *The Giver*

Days _____ My Role This Week_____

Date	In Class Goals	At Home Goals

Name_____

Literature Circle Discussion Question

Week 1

Goal: The community in which Jonas lives is very different than ours. Discuss what it would be like to live in Jonas's community, as well as the advantages and disadvantages of a society like Jonas's. To do this, you will each take on different character's roles and examine the community from their point of view. Use the graphic organizer below to organize your thinking.

Your Character: An Elder

Why did you create the community this way? Why do you think it is an ideal community? Gather evidence from the text that supports your reasoning.

Reasoning: It is an ideal community because …	**Textual Evidence (direct quote with page #)**	**This evidence supports that it is an ideal community because …**

Name_____

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Your Character: Jonas

Jonas, how do you feel about living in this community?

Feelings	Textual Evidence (direct quote with page #)	Explanation

Name_____

Literature Circle Discussion Question

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Your Character: An Outsider

How would you feel about living in the community? Your evidence should match your explanation. In other words, if you say you don't like how there job is selected for them, your quote should show an example of this from the text.

Feelings	Textual Evidence (direct quote with page #)	Explanation

Change Bilentschuk, Cleary, Despres, Macedo, Poulos

Group Names_____

Discussion Summary Sheet

Week 1

Overall Summary:

Advantages	Disadvantages

NAME_____

Literature Circle Discussion Question

Week 2

Goal: Jonas's role as the Receiver of Memory is very important to his community and the memories play a large role in his changes and the theme of the novel. Discuss the memories and what it is that they are teaching Jonas and us about life.

Your Role: The Giver

Why are you selecting these memories to transmit to Jonas? You may want to consider the things they tell about the past, why they are important to keep alive, what to they tell about Jonas's community…

Memory	Direct Quote, page #	Why did you select this memory? What did you want Jonas to learn about?

NAME_____

Literature Circle Discussion Question

Week 2

Goal: Jonas's role as the Receiver of Memory is very important to his community and the memories play a large role in his changes and the theme of the novel. Discuss the memories and what it is that they are teaching Jonas and us about life.

Your Role: Jonas

How are you reacting to these memories? List the memories and how they make you feel about your community and yourself.

Memory	**Direct Quote, page #**	**How do you feel about the memories? How are you changing?**

NAME_____

Literature Circle Discussion Question

Week 2

Goal: Jonas's role as the Receiver of Memory is very important to his community and the memories play a large role in his changes and the theme of the novel. Discuss the memories and what it is that they are teaching Jonas and us about life.

Your Role: Jonas

What are you learning about life through these memories? Consider...what are you learning about your community, the past, yourself, your family…

Memory	**Direct Quote, page #**	**What you learn Community, past, yourself, family**

NAME_____

Literature Circle Discussion Question

Week 2

Goal: Jonas's role as the Receiver of Memory is very important to his community and the memories play a large role in his changes and the theme of the novel. Discuss the memories and what it is that they are teaching Jonas and us about life.

Your Role: Jonas

Consider the individual memories and how your emotions are changing because of them. Describe the depth of your emotion as you learn about the memories.

Memory	Direct Quote, page #	How your emotions and understanding about life and your community are changing

NAME_____

Literature Circle Discussion Question

Week 3

The ending of *The Giver* can be interpreted in two very different ways. Some people think that Jonas is remembering his Christmas memory-one of the most beautiful that The Giver transmitted to him-while he and Gabriel are freezing to death and falling into a dreamlike coma in the snow. Other people think that Jonas really does hear music and, with his special vision, is able to perceive the warm house where people are waiting to greet him. What evidence supports each ending? After your discussion, your group will choose one ending as more likely.

Textual Evidence that supports that Jonas and Gabe made it safely to Elsewhere	Analysis	Textual evidence that supports that Jonas and Gabe died	Analysis

Social Studies Unit

Unit Rationale and Goals

This social studies unit that investigates the origin and development of American democracy is revealed to the students through inquiry and participation in the 2008 presidential campaigns and election process. The unit is designed for an 8th grade social studies/history class, but could be used in any middle school social studies classroom. The unit spans approximately 35 to 40 class periods. The lessons included in this unit are varied, engaging and student driven. Students will discover through the study of the origin of democracy that our nation's government although steeped in tradition, is also flexible, growing and changing all the time. Students will identify which ways our government structure has grown and changed since the middle 18th century.

This unit will reveal the answers to such questions as: What party affiliation will you choose to be involved with and why? In what ways can an individual participate in civil government? Can a group of voters' influence and change society? What major issues are being debated today? Are the major issues being debated today easily resolved? Can you think of any ways to resolve some of the major issues today or maybe change the way we think about them? Compared to the other forms of government you have studied, do you think that living in a democratic society is beneficial to you, why or why not? What is it about the past that you learned in this unit that is still relevant to our society and political processes we practice today?

Some of the goals of this unit are to enhance student writing, critical thinking, research, and presentation skills. Another goal is to encourage cooperative and collaborative learning that allows for interactions within small work groups and the community. The goals of understanding and analyzing change and resistance are met as the students get involved in the social and political activities included in this unit.

Unit Overview

8th Grade Social Studies Frameworks

U.S. History I, The Revolution through Reconstruction 1763-1877, pathway 3

The Political and Intellectual Origins of the American Nation: the Revolution and the Constitution 1763-1789. USI.1-10 The Formation and Framework of American Democracy.USI.11-21

Students learn about the formation and framework of American government.

Students investigate the development of the Constitution and Bill of Rights

Students analyze how Americans ***resisted*** British policies.

Students understand the responsibilities and rewards of citizenship through participation in the political process.

Students experience how the political election process can be the catalyst for social ***change***.

There will be considerations for students with varied abilities, learning disabilities, and students who are on IEP's. As student's needs are identified the curriculum will be modified and adapted to accommodate those needs. Any classroom aids available will also assist with students who demonstrate any special needs.

The first 10 weeks of school in a presidential election year would be a great time to introduce this unit. (This unit could also be used for local and state elections too.)

Students observe and participate in the democratic process that allows Americans to exercise their rights to elect officials who support the beliefs of the majority voting public.

Students actively participate in the election campaign process to see how the democratic process provides Americans with a system to elect officials who will represent them and their views. Students explore; major issues; the election process; and how to effect social change.

Students create an election center in the classroom to track and report on the local, state and federal campaigns and elections. The Electoral College, political party affiliations, polls, and interest groups will also be examined.

As students take part in the election process they look back in history to discover the origins of democracy and the electoral process. Students get involved in either a local, state or federal government election campaign through polling, telephoning, sign holding and working at campaign offices. Active involvement in election campaigns is an experience that will allow students to understand the entire election process.

As an assessment instrument students will publish a weekly newsletter on the major issues, polls and events of the week. Presentations, participation in the classroom election center and election campaigns will also be assessed.

This social studies unit spans about 8-10 weeks from the start of the school year to the first week in November culminating with participation in the election.

From here the frameworks move into Westward Expansion, the Civil War and reconstruction, topics that relate to the universal “change and inspiration” theme that will continue to carry the class to the end of the year.

Unit Lesson: #1. Changing Times

Standard: **USI.1 (H, C), USI.2 (H, C)**

Lesson title: **Out with the old, in with the new.**

Length: **(3) 45 minute blocks**

Instructional Objective

Cognitive: Students review the political and economic factors that contributed to the American Revolution and the impact the French and Indian War had on the colonies. Students explain how freedom from European feudalism and aristocracy and the widespread ownership of property fostered individualism and contributed to the Revolution. Students explain the historical and intellectual influences on the American Revolution and the formation of and framework of the American government. Students explain the influence and legacy of ancient Greece and Rome on the formation of the American Government. The political theories and influences of European philosophers Locke and Montesquieu are explored.

Affective: Students will work in groups of 4 to investigate the assigned topics listed above and create a presentation in a format of their choice to present their findings to the class.

Skill: Students do research on assigned topic. Students determine the most important factors related to assigned topic.

Preparation Materials and Teacher preparation

Procedures: Teacher assigns groups and topic assignments. Students research assigned topic. Students create presentation of choice.

Assessment: Evaluation of presentation by teacher and classmates. See presentation checklist for guideline.

Out with the old, in with the new rubric

Category	Unacceptable	Acceptable	Admirable	Exceptional	Your Score
Effort	*avoids doing Work complains & makes excuses*	*Reluctantly Works seeks easy Tasks*	*willingly takes on task works to Completion*	*Works Independently on task completes task Independently*	1 2 3 4
Planning	*Has no plan does not meet any deadlines*	*Postpones Work needs deadline Push*	*makes plan needs help allotting time misses deadlines*	*plans well executes plan well meets deadlines*	1 2 3 4
Writing Mechanics Spelling Sentence Structure Punctuation	*writing needs work in all areas*	*There are a few Mechanical Errors*	*written work is mostly free of errors*	*written work is Free of errors*	1 2 3 4
Organization & Time Management	*is not organized and uses time Poorly*	*is organized and Uses time wisely some of the time*	*is organized and uses time wisely most Of the time*	*is organized and uses time wisely all the time*	1 2 3 4
Quality of Presentation format	*Information is Incomplete Many connections not made*	*shows some detailed information makes few relevant Connections*	*Information provided is detailed with some relevant connections*	*Information provided is detailed, excellent and relevant connections are Substantial*	1 2 3 4

Unit Lesson: #2. A New Nation.

Standard: USI.3, (H, C), USI.4, (H)

Lesson title: Democracy; How did we get there?

Length: (2 to 3) 45 minute blocks

Instructional Objective

Cognitive: Students explain the influence and ideas of the Declaration of Independence and the political philosophy of Thomas Jefferson. Students analyze how Americans resisted British policies and the reasons for the American victory and the British defeat during the Revolutionary war. Students review the Mayflower Compact and Declaration of Independence

Affective: Students work in groups to research one of the assigned issues shown above and present findings to the class. Students reflect on how these ideas and philosophies are relevant to the ideas and philosophies of today. Students engage in discussions with classmates

Skill: Students investigate the issues as assigned. Students research issues in history books and on the internet. Students reflect on how these ideas, issues, and philosophies have shaped our democratic government. Students develop and answer essential questions to share with the class.

Preparation Materials and Teacher preparation

Procedures **Teacher assigns groups and topics to research. Students read the Declaration of Independence and the Mayflower Compact for background knowledge.**

Assessment **In groups students facilitate a class discussion on assigned topics and findings.**

Unit Lesson: #3. Let's look at the issues.

Standard: **USI. 7 - USI.10 (U, C, G)**

Lesson title **Major Political Issues; have they changed over time?**

Length **(3) 45 minutes blocks**

Instructional Objective

Cognitive: Students identify the factors that are driving the major issues of today and the major issues during the last quarter of the 18th century.

Affective: Students work in groups of two investigating the major issues being debated in the current presidential election. Student's compare and contrast a major issue of today with a major issue during the last twenty-five years of the 18th century. Students are asked to consider the following questions; are the major issues being debated today easily resolved? Can you think of any ways to resolve some of the major issues today or maybe change the way we think about them?

Skill: Students collect and report on findings related to the major issues of the presidential election comparing and contrasting against a major issue during the last twenty five years of the 18th century. Students share with classmates highlights of their findings on a poster presentation.

Preparation Materials and Teacher preparation

Procedures: The "getter" pulls one of the major issues from today from a hat that is provided for the students. Students also pick a major issue from 1763-1789. Students research major issues and create a poster to illustrate and relate findings to the class in a short presentation on both issues. Students review the U.S. Constitution.

See attached sheet for major issues topics.

Assessment: Checklist for group participation and presentation

Group Name_____

Class Period_____

Lesson: Major Political Issues; have they changed over time?

Checklist and evaluation form for major issues group participation and poster presentation.

15 Points_____ Students worked cooperatively within the group.

25 Points_____ Each student participated in a meaningful way to complete the project, researching, note taking,contributed to presentation.

25 Points_____ Presentation poster shows significant points about assigned major political issues and answers the questions posed.

15 Points_____ Presentation poster conveys that the students understand the major political issues assigned to their group.

10 Points_____ Presentation poster shows a considerable amount of creativity.

10 Points_____ Presentation is clear and is given within the time frame allotted.

Current political issues:

Abortion

Affirmative Action

Agricultural

Animal Rights

Censorship and the Internet

Church-State

Climate Change

Death Penalty

Firearms-Gun control

Health Care

Immigration

Language

Medical Marijuana

Nuclear Testing

Political Corruption

Race Relations

State of the Union

Tax Reform

Terrorism

War

Weapons of Mass Destruction

Issues 1763-1789

Displaced Native Americans

Women's Rights

Slavery

British Rule

Distribution of political power

Rights of individuals

Rights of states

Land ownership

Unit Lesson: #4. Roles of elected officials.

Standard: USI.11 - USI.18 (H, C,)

Lesson title Who does what?

Length (4 to 5) 45 minute blocks

Instructional Objective

Cognitive: Students describe the purpose and functions of government. Students review different forms of government including; democracy, monarchy, oligarchy, theocracy and autocracy. Students identify why the United States government is classified as a democratic society and the characteristics of American democracy. Students explain the roles and responsibilities of federal, state and local governments in the United States.

Affective: Students will work together in groups to examine the functions and different forms of government. Students create charts to show the functions of government for display in the election center.

Skill: Students engage in research and create election center charts to use as reference materials.

Preparation Materials and Teacher preparation

Procedures: Teacher provides checklist for chart creation

Students are given research time in class to examine the functions and different forms of government. Students research what jobs elected officials perform.

Assessment: Government function chart and checklist completion.

Group Members_____

Class Period_____

Check list: Who does what?

15 Points_____ Students worked cooperatively within the group.

25 Points_____ Each student participated in a meaningful way to complete the project, researching, note taking, and contributed to the chart assignment.

25 Points_____ Chart provides information on the roles and responsibilities of elected officials.

15 Points_____ Chart conveys that the students understand the purpose and functions of local, state, and federal, politicians.

10 Points_____ Chart is easy to read and has relevant information represented.

10 Points_____ Chart is clear and is presented within the time 10 minute frame allotted.

Unit Lesson: #5. Election ready.

Standard: USI.19 (H, C,)

Lesson title: How can I participate?

Length (1) 45 minute block

Instructional Objective

Cognitive: Students learn about the responsibilities of citizenship and describe how a democracy provides opportunities for citizens to participate in the political process through elections, political party affiliation, and interest groups.

Affective: Students become aware of the responsibilities of citizenship what it takes to participate in the political process.

Skill: Students independently research the responsibilities of citizenship and how they can participate in the election process.

Preparation Materials and Teacher preparation

Procedures: Students research the responsibilities of citizenship. Students identify ways they can participate in the election process.

Assessment: Students reveal to classmates the ways they will participate in the election process, and which campaign they will align themselves with.

Unit Lesson: #6. Party Affiliation

Standard: USI.20 (H, C,)

Lesson title Pick your party!

Length (2) 45 minute blocks

Instructional Objective

Cognitive: Students study the origins of political parties and choose a party to become affiliated with for the duration of the election.

Affective: Students will investigate individually which political party they most closely identify with and which party they will become affiliated with during the election.

Skill: Students research political parties and beliefs. Students choose which political party they will become involved with.

Preparation Materials and Teacher preparation

Procedures: Students research political parties and choose one to become affiliated with for the election.

Assessment: Students share with classmates which party affiliation they have chosen to become involved with for the duration of the election.

Unit Lesson: #7. Tracking the election.

Standard: USI.21 (H, C,)

Lesson title Let's get involved.

Length 10-15 minutes each block for the duration of the unit

Instructional Objective

Cognitive: Students watch the election evolve through analyzing the major issues and conflicts between opponents. Students chart and graph the polls as they are reported in the media.

Affective: Students review with their classmates the differences between their parties and where they stand on the issues.

Skill: Each day the election center is updated by the students for any current events that took place related to the election. Students predict who they think is winning the election based upon the polls and major issues being debated.

Preparation Materials and Teacher preparation

Procedures: Students gather election specific information daily to update the election center. Students publish a weekly newsletter to update everyone on the status of the election and the pertinent events of the week.

Assessment: The weekly newsletter will be evaluated for pertinent and relevant election data.

Weekly Newsletter Check list: Keeping everyone informed.

15 Points_____ Students worked cooperatively within the group.

25 Points_____ Each student participated in a meaningful way to complete the weekly newsletter, researching, note taking, contributed to newsletter development as assigned.

25 Points_____ Newsletter includes relevant information pertaining to election issues and polling data.

15 Points_____ Newsletter conveys that the students understand what the significant issues of the week were and chose relevant things to include in newsletter

10 Points_____ Newsletter shows a significant amount of creativity.

10 Points_____ Newsletter follows a logical sequence, is informative and is completed within the time frame allocated.

Science Unit

Throughout the unit, students will explore the question, “what inspires things, people, and societies to make major change?” Within the first 3-6 weeks of the science portion of the unit, students will learn about the concept of change by focusing on the process of metamorphosis, how change influences outcomes in systems as well as in natural settings. In doing this, students will be challenged to consider how underlying and outside forces influence change. They will also learn how making certain choices can change external situations around them. Students will participate in hands-on activities that will cognitively and affectively engage students in high level, standards based work. These activities will engage students in investigating, discovering, developing driving questions, observing/collecting/interpreting data, classifying, measuring, and drawing conclusions about changes that they observe in the laboratory. Through these activities, students will learn various science concepts, as well as build on processing skills and science habits of mind. The activities they will participate in will help students understand what inspires change, if change can be controlled, and how change can make improvements. Their reflections on these concepts will help them understand what change means to them and how they are influenced/inspired to make a change in their lives. In addition, the unit will challenge them to consider what changes they have made and wish to make for themselves.

Brief Description of Group to be Taught: This portion of the unit will be conducted with classes containing approximately twenty-five eighth grade students with varying ability levels, including a few children on IEP’s. The activities throughout the unit can be challenging to those who have learning disabilities. Therefore, students with IEP’s will be carefully monitored during the activities to ensure their IEP's are being addressed accordingly. Additional help/guidance will be provided. In addition, the lesson plans may be modified and adaptations may be added to the plans on an individual needs basis.

Unit Length: This unit will be conducted over the course of the school year. Although we will not be focusing on the unit each day in class, the unit theme will be revisited periodically throughout the school year. Students will be working in groups of four, in pairs, and as a class during various parts of this unit.

Driving Questions: How do outside forces influence change? Can change be controlled? How can change make improvements?

Massachusetts Frameworks:

The following learning standards will be addressed in this unit:

Strand: Life Science (Biology), Grades 6-8
7. Recognize that every organism requires a set of instructions that specifies its traits. These instructions are stored in the organism's chromosomes. Heredity is the passage of these instructions from one generation to another. These instructions are stored in the organism's chromosomes.
8. Recognize that hereditary information is contained in genes located in the chromosomes of each cell. A human cell contains about 30,000 different genes on 23 different chromosomes.
10. Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms.

Strand: Chemistry and Physics, Grades 6-8
Learning Standards:
11. Explain and give examples of how the motion of an object can be described by its position, direction of motion, and speed.
12. Graph and interpret distance vs. time graphs for constant speed.

Strand: Technology/Engineering, Grades 6-8
2.6. Identify the five elements of a universal systems model: goal, inputs, processes, outputs, and feedback.

Objectives:

Science Concepts:

Students will understand the life cycle changes that occur for a caterpillar to become a butterfly.
Students will understand that genes are passed from parent to offspring.
Students will understand that underlying forces (genes) are what drive the life cycle changes from a caterpillar to a butterfly.

Students will understand that genes are responsible for why fruit flies vary from one another.
Students will understand that the life cycle of a fruit fly is very similar to the life cycle of a butterfly.
Students will understand how various materials (e.g., sand, stone) affect waves in the ocean.
Students will understand how wave size is influenced by wind speed.
Students will understand how wave speed is influenced by water depth.
Students will understand that speed is determined by the distance something travels divided by the time it takes to travel that distance.
Students will understand how parts of a system interact to make the whole system work.
Students will understand how to make a controlled system that operates at a constant rate.

Process Skills:

The following process skills will be learned and practiced throughout this portion of the unit.

- Classifying/Identifying
- Observing
- Data Collection and organization
- Forming hypotheses
- Designing Investigative procedures

Instructional Strategies:

Throughout this portion of the unit, students will be assessed on a periodic basis. Their understanding of the concepts being taught will be assessed individually via tests, lab journals, and lab reports. Their understanding will also be assessed through informal observations while students work in cooperative groups on activities and while they are working on experiments. Additionally, assessment questions will be asked during group work and experiments to assess students' progress and understanding.

Student Activities:

Activity 1:

Metamorphosis-Your Place in the Cyc;e

Resource: Part I of this activity is based on the activity found at: http://ksnn.larc.nasa.gov/k2/s_metamorphosis_a.html. Some parts of the activity have been modified for this integrated unit.

To teach students about change and how it relates to transforming from adolescence to adulthood, the unit will include an activity on metamorphosis.

Teacher Preparation:
Before the activity begins, the teacher will write each stage of complete metamorphosis for a butterfly on separate cards. A card will be created for each stage, egg, larva, pupa, and adult.

Activity:

Materials Needed:

4 x 6 index cards
Clay
Chart Paper on Easel

Part I:

Students will begin this activity by watching a video on metamorphosis. The video will be stopped after each stage is addressed to highlight the characteristics of each metamorphic stage. After watching the video, students will be asked to select a card. Students will be expected to draw or make a clay model to represent the stage they selected. Once they have completed this task, students will be placed in groups based on the stages they selected. All the egg stages will be grouped together, the larva stages, etc. The students will be asked to discuss how all of their drawings or clay models are similar. Then, students

will re-group to form a complete metamorphosis cycle. The students will be asked to show the correct sequence of their stages and students will be asked to discuss the different needs/characteristics of each stage. Students will share these on a T-chart that will be created during a whole class discussion.

Part II:

Materials Needed:

Pre-made Media
Dissecting Scopes
Clear Vials (5cm diameter)
Tweezers

Students will begin a hands-on activity to study/observe metamorphosis of the fruit fly, *Drosophila.melanogaster.* Students will create habitats with media wherein they will study the various stages of metamorphosis. Students will make observations of life cycle changes in their habitats throughout a three week period. During this time, they will observe each stage in detail using a dissecting microscope. They will be asked to draw detailed drawings of their findings, i.e., each stage they observe under the microscope.

After the completion of parts I and II of this activity, students will answer the following questions in groups of 4.

What is unique about each stage you observed in both parts of this activity?
What drives changes in these stages?
Can anything stop these changes from occurring or are the changes programmed within?

Students will be expected to perform research on Drosophila and metamorphosis to help them answer these questions. After answering these questions in their groups, students will answer these questions on a T-chart. After the T-chart has been constructed, students will reflect upon the process of metamorphosis.

Assessment:

Students will be asked to write a one page paper on the process of metamorphosis and how it relates to their transformation into adulthood. They will be expected to address the questions they answered in their groups above. They will be asked to answer the following questions about change:

How is the process of metamorphosis similar to your transformation from adolescence to adulthood?
What is unique about you?
What drives changes in you?
Can you control changes in your life? If change is inevitable, then how can we facilitate and accept change in our lives?

Connection:

Unified Arts: The art teacher will team up with the science teacher to teach students how to draw live specimens in order to show detail and dimension.

Activity 1b:

Gene Puzzles

Resource: This activity is based on the activity found at: http://www.sciencenetlinks.com/lessons.cfm?BenchmarkID=5&DocID=96. Some parts of the activity have been modified for this integrated unit.

In this lesson, students will come to understand that in sexually reproducing organisms, such as humans, typically half of the genes come from each parent. This activity will help students build an understanding of how offspring inherit genes from their parents.

In this lesson, students will examine a fictional pedigree and determine which gene is responsible for a given trait. The genetic information for individuals is depicted as a jigsaw puzzle. Terms that students will encounter include gene; chromosome; DNA; pedigree; genotype; phenotype; dominant; and recessive.

Materials Needed:

- poster board
- markers
- index cards
- scrap paper
- pencils
- notebooks
- colored photographs of students and family members
- Gene Puzzle Activity student sheet

To begin this activity, students will be asked, What traits do you share with your parents, brothers or sisters? Then, students will be asked to make a poster which lists shared traits that are physical traits. They will create the poster using color photographs so people looking at their poster can see the traits themselves. They will look for the following traits: shape of eyebrows, lips, nose, chin, cheekbones, eyes, coloring of hair and skin, height, laugh, smile, dimples, freckles, and speech. These will be displayed in the classroom. Each child will get a set of index cards on which he will write down observable traits that he can

see from each of the other students' posters. Each child should get a stack of index cards back that are about him/her, which have been completed by other members of the class.

In addition the following questions will be asked:

- How do you think you got the traits that you share in common with your parents, brother, or sister?
- Do you think you got those traits from both parents or just from one of your parents?
- Do you know what genes are? If so, what are they?

Then, a class discussion will occur to have students discuss traits that are inherited. At this time, I will determine if students hold any misconceptions about this topic.

Following this activity, students will do an activity called Finding a Gene on the Chromosome Map, from the Genetic Science Learning Center website, http://learn.genetics.utah.edu/units/disorders/pedigree/. Students will work in groups of 4 for this activity. Students should read through the first page of this site. When they are done, they should click on the activity, Find the Gene for Whirling Disorder (http://learn.genetics.utah.edu/units/disorders/pedigree/mapgene.cfm). They should do just the first part of the activity and work in pairs to solve the puzzle.

Following this activity, students will be asked to explain the strategies they used to find the piece of the puzzle responsible for "whirling disorder." Students should consider answering the following questions in their groups. A class discussion will follow and students will write a conclusion to address these questions.

- How far through the generations did you get before starting to understand what gene it was?
- How did you know what gene it was?
- Did both parents possess the "whirling" gene or did just one parent have that gene?
- Which parent passed on that gene to his/her child?
- Did the female child (#3) get all of her genes from her father or does she have a mixture of genes from both parents?

Next, students will complete the Gene Puzzle Activity student sheet at http://www.sciencenetlinks.com/pdfs/genepuzzles_actsheet.pdf,

Students will color it in to represent the genes for two parents and the genes for their offspring. Students should take two of the 12 listed individuals, name them parents, and then color in new offspring.

Assesssment:

The puzzles will be collected and reviewed. These puzzles should demonstrate that students understand that roughly half of the genes come from the mother and half from the father.

Activity 2, 3 & 4:

Resource: These activities were found at:
http://www.barwonbluff.com.au/education/activities/Ecosystem/waves.pdf

Wave Experiments

Materials Needed:

Steam Tray
Bucket of sand
Bucket of stones
Two different lengths of wood
Electric fan
Stop Watch

Activity 2:

Investigating the Effect of Beach Materials on the Reflecting Waves

In groups of 4, students will perform this experiment following the procedure below.

1. Fill the stream tray to a depth of 4 cm.

2. Place a board (on a slight angle) at the end of the tray.
3. Create a wave that will be reflected off the board and count how many times the wave move back and forth across the tank before it disappears.
4. Replace the reflecting board with stones. Place a pile of stone at one end of the tray. These stones should be piled up to a level just below the top of the tray. Ensure that there is a seaward slope with the pile of stones and it is even across the width of the tank.
5. Create a wave that will be reflected off the stones and count how many times the wave moves back and forth across the tank before it disappears.
6. Replace the stones with a pile of sand. Ensure that the sand is higher than the water level and that there is a seaward slope of sand.
7. Create a wave that will be reflected off the sand and count how many times the wave moves back and forth across the tank before it disappears.

After following the procedure for this experiment, students will answer the following questions in their groups:

Did you observe any differences/similarities between the reflecting waves?
If there are differences, can you explain them?
How did the changes you made influence the reflecting waves?
What would happen if we changed the set-up and we placed an island in the center of the stream tray?

Activity 3:

Investigating the Relationship Between Wind and Wave Size

How does wind effect waves?

In groups of 4, students will perform this experiment following the procedure below.

1. Construct a “beach” at one end of the tray with either sand or pebbles. Slowly fill the stream tray with water to a depth of 3cm.
2. Position a fan at one end of the stream tray opposite to the sand end.

3. Aim the fan so that the air will hit the water at a 45 degree angle. Never allow the fan to touch the water or electric shock could occur.
4. Students should create a data table to record observations and predictions.
5. Using the low speed on the fan, turn it on for 3 minutes. Record your observations of the water in the form of a table. Allow the water to become calm.
6. Using the high speed on the fan, turn it on for 3 minutes. Record your observations of the water in the table.
7. Write a prediction that describes what you think will happen to the water when you turn the fan on for 5 seconds at high speed. Turn it on for 5 sec and record your observations next to the prediction.
8. Now that you have your prediction and observation recorded in the table, predict what will happen to the water when the fan is turned on for 10 sec at high speed.

After performing these steps, students will answer the following questions in their groups:

Using your observations, what can you say about the link between wave size and wind?
How did this change (adding wind) affect the reflecting wave you created when you used sand in activity 2?
What do you think would happen if we changed the length of the stream tray and made it longer?
What do you think would happen if we changed the angle of the fan?

Activity 4:

Investigating The Relationship Between Wave Speed and Water Depth

How does water depth effect wave speed?

For this activity, students will follow the procedure below.

1. Fill the stream tray to a depth of 1 cm. Use the longer piece of wood to act as a reflector at one end of the tank.
2. Practice making a wave pulse by “dropping” or “pushing” the shorter piece of wood into the water at one end. Time how fast the wave travels the distance of the tray.
3. Record the distance and time taken in the table (see attached).

4. Repeat this for depths of 2cm, 3cm, 4cm, and 5cm.

After performing this experiment, students will answer these questions in their groups.

Do you see any patterns or trends?
What will happen if we changed the set up and we placed sand on the bottom?

Students will be asked to create a graph to show the relationship between wave speed and depth.

After performing activities 2, 3, and 4, a class discussion will be held and the questions in each activity will be discussed. Once these questions are addressed, students will be asked to write a conclusion in their laboratory journal addressing their findings and these questions. In addition, they will be asked to address the following questions about personal change in their conclusions.

How do the ideas learned in these experiments relate to personal change?
What did you learn about how things can be affected with change?
What outside forces influence you?
What influences have you had that have caused you change in some way? How did this change make you different?
Have you ever wanted to resist change, but some forces have made it impossible for you to resist change?
Have you ever been inspired to change by outside forces?
Can you control change in your life?

Assessment:

Throughout activity 2,3, and 4, students will be assessed using the following:

Informal observation of group discussions
Individual participation in class discussions at least once
Graph accurately reflects the relationship between wave speed and wave depth

Students write a conclusion in their lab journals that addresses observation and findings of experiment, addresses questions about experiments, and addresses personal change questions.

Activity 5:

Building a Water Clock

Resource: This activity was found at:
http://www.sciencenetlinks.com/lessons.cfm?BenchmarkID=11&DocID=2

Students will build a feedback-controlled system (a water clock) and research ways that they can change its design to improve the system. In this activity, students will examine the interactions between the parts of a system.

Materials Needed:

- 1-liter plastic soft drink bottle with the label removed
- pin
- timer or watch that can be read to seconds
- ruler
- marking pen
- 100-mL graduated cylinder

Students will begin this activity by viewing a picture of the largest water clock in North America, on display at the Children's Museum of Indianapolis. This water clock can be found at: http://www.childrensmuseum.org/. Students will be asked to describe some of the parts that make up the water clock

After viewing the water clock, students will be asked to read more about water clocks in A Walk Through Time at: http://physics.nist.gov/GenInt/Time/early.html. Students' attention will be focused on the simple water clock described on the page.

As they read, students will be asked to write down the answers to the following questions:

- What are the parts of a water clock?
- What is it designed to do?
- What advantage does it have over other devices such as sundials? (It could be used at night as well as in daylight.)

- What is the largest problem associated with water clocks? (The rate of flow of water is very difficult to control accurately.)

A class discussion will follow to address the answers to the questions.

How A Water Clock Works

In the first part of the activity, the class will investigate how a water clock works and the effect of one of its variables on its ability to be an accurate timepiece.

The students will be told: *Early water clocks were stone vessels with sloping sides that allowed water to drip at a nearly constant rate from a small hole near the bottom. Other water clocks were bowl-shaped containers that slowly filled with water at a constant rate. Markings on the inside surfaces measured the passage of time as the water level rose on the inside of the bowl, a result of its slowly sinking. We're going to use a soft drink bottle to make a similar device.*

Students will be asked to select what they consider to be the most important parts of the device.

The procedure to be followed by the students is below.

Procedure: The following procedure will be a teacher-led exploration:

Use the pin to make a very small hole in the bottom or close to the bottom of the bottle. A hole smaller than the diameter of the pin is desirable. Let the students examine the hole.

Holding a finger over the hole, fill the bottle with water to a level just below the shoulder where it begins to have a smaller diameter. Mark this level on the outside of the bottle. Measure the time required for 100 ml (+/- 0.5 ml) of water to run or drip out of the bottle. Repeat the experiment with the starting water level about halfway up the bottle and with the starting water level very low in the bottle. Plot the times as a function of the distance the starting water level was above the hole in the bottle.

A class discussion will follow to address the results. During the discussion, students will be asked the following questions:

What do the results tell you? (The drip rate will change if the water level in the bottle changes very much.)

What does this tell you about a water clock? (It might not be very accurate.)

After this class discussion, students will be asked to write a one-sentence description of how they might improve the simple water clock made in this demonstration. Student answers may vary, but generally they should respond that the clock could be improved by making the drip rate more constant.

Building a Better Water Clock

In this part of the activity, students will build a feedback-controlled robotic system that will function as a water clock that will keep time accurately for at least two hours without human intervention.

For this part of the activity, the procedure below will be followed:

Procedure: Divide the class into groups of 4. The goal for each group is to construct a water clock that will keep time accurately (within +/- 1%) for at least two hours without human intervention. To accomplish this, the drip rate from the bottle has to be constant. A drip rate of 10-15 ml/min will give appropriately accurate data (when the volume that drips out is measured). At this drip rate, 1-2 L of water will be collected in two hours and this is a small enough amount to be manageable. Since the drip rate will change if the water level in the bottle changes very much, the water level in the drip bottle will have to be kept pretty constant in order to keep the drip rate constant.

The task is to design a feedback-controlled robotic system to keep the water level in the bottle constant enough to maintain a steady drip rate. The student groups will each have to decide what "constant enough" is. The robot will need to sense the water level in the bottle and add water as necessary (but not too much or the level will get too high).

You can restrict the kind of sensors the students may use to mechanical devices (like floats) or allow them to use any materials from the classroom (or readily accessible in almost any household), including photocells for electro-optical sensing, if you they are available.

The source of water could range from a large (2-L) reservoir of water to the tap. The robots can also range from ones powered only by the force of gravity to ones that incorporate electrical components like small motors. The critical part of the robot is the control of water flow from its source into the bottle. The flow through tubing will be controlled by squeezing the tubing.

Students will be provided time in class and outside of class to develop the concepts for their robots, check their ideas to be sure they meet the design criteria and are safe, and then they will be provided at least one or two periods of in-class time for part of the construction, so I can judge how the group members are working together and so I can provide encouragement and reinforcement of their ideas.

The finished robots must have a prominent sign giving the conversion factor from volume of water collected to minutes from beginning of collection.

Students should present their finished robots to the class. Each project should be accompanied by a written report which details their design, including drawings illustrate and name all of the parts of the robot system they have designed.

A whole class discussion will follow the presentations of the robots to discuss which approaches were successful and why.

After performing the activity, students will reflect upon what they have learned about change in their science journals. They will be asked to elaborate on this activity with regard to how comfortable they were with developing a way to change/improve the system. Given the complexity of the activity, most students probably were not comfortable with the change they were asked to make. Therefore, they will be asked to reflect upon how this change has challenged them and what they learned from the change.

Assessment:

Testing of the finished robots will be at two or three random times during a two-hour run to see whether it is keeping time to within the specified +/- 1% over the entire period.

Full assessment credit will be given to any group whose robot meets the specifications. Minor deductions for missing the goal will be decided by the teacher and will be based upon

design efforts. For those students who missed the goal, they will be asked to discuss what they think they could have done differently to meet the goal.

Students write about how this experiment taught them about change in their science journals.

Continuation of unit throughout the year: Although this science portion of the unit contains a snapshot of the first three to six of classes, the theme will be carried out throughout the year. To get students prepared for their culminating activity to make a change, we will explore an Adopt A Stream project wherein students will investigate a local stream, design clean-up and protection projects for the stream, perform water quality testing, and evaluate the stream's water quality by studying macroinvertebrates found in the stream. We will also perform activities that study the concept of adaptation to follow the theme of change.

Investigating Relationship between Wave Speed and Water Depth

Depth (cm)	Distance (m)	Time (sec)	Velocity (m/sec)
1 cm		(i) (ii) (iii) average	
2 cm		(i) (ii) (iii) average	
3 cm		(i) (ii) (iii) average	
4 cm		(i) (ii) (iii) average	
5 cm		(i) (ii) (iii) average	

Art Unit

Grade Level: 8
Subject: Art
Duration: Full year project
Lesson: "Making Changes in the Community"

Goal: Students will understand the impact social change can have when implemented in the community by creating a mural.

Objectives: -Students will create a mural using artistic strategies, formats and styles.

- Students will work in groups to promote the importance of social change.
- Students will visually demonstrate a change in thinking from separatism to unity.

Essential Question: How does social change affect a community?

Art Curriculum Frameworks and Instruction Practices:
Standard 7:Roles of Artists in Communities
Students will describe the roles of artists, patrons, cultural organizations, and arts institutions in societies of the past and present.

Standard 8:Concepts of Style, Stylistic Influence and Stylistic Change
Students will demonstrate their understanding of styles, stylistic influence, and stylistic change by identifying when and where art works were created, and by analyzing characteristic features of art works from various historical periods, cultures, and genres.

Materials: computers, graph paper, several quarts of interior house paint, several paint brushes in assorted sizes, plastic containers for mixing colors, pencils, yardsticks, chalk, rags and buckets of water.

Lesson: Students will seek volunteers in the community who wish to have a mural painted on a wall in the city. Students will paint the flags of different countries as part of the mural as part of social change. Students will work in a group to create flags from different countries.

Procedure:

(1.) Students will access the internet to find flags from twenty countries.
(2.) Students will draw the flags on a one inch grid.
(3.) Students will draw a 12X25 foot grid on the wall.
(4.) Using chalk, students will transfer the flags from graph paper to the large grid on the wall.
(5.) Students will "water down" white paint until it reaches watercolor consistency.
(6.) Using the white watercolor paint, students will write the word "ONE" in large, semi-transparent letters over the selection of flags.

Culminating Activity:
Students will write a 1 page essay that will answer the essential question about their city. Students will be asked how they think their project will change their community.

Conclusion: Students will develop research skills (accessing the internet to find flags) and math skills (transferring from a 1 inch grid to a 1 foot grid) as well as various art skills

(painting, drawing, color mixing, etc.) This lesson will help students to change their community.

Physical Education Unit

Grade Level: 8

Subject: Physical Education

Duration: Full year project

Lesson: "My Body is Changing"

Goal: Students will complete a fitness program while understanding the changes their bodies are going through during adolescents.

Objectives: -Students will participate in physical activities.
- Students will develop a nutritional plan.
- Students will complete written and verbal exercises.
- Students will construct an essay.

Essential Question: What is the importance of physical fitness?

Introduction: It is important for middle school students to understand the importance of keeping physical fit as well as acknowledging the chances that are happening in adolescents. During this unit, students will read literature on the important elements of adolescent's physical change, participate in a nutritional program and document the changes they are making.

Because students are at different physical levels in eighth grade, each student will be responsible for coming up with their own nutritional activity. For example, a two hundred pound boy would be directed to focus on a program where he could cut down on is weight while building muscle. He would be referred to routine dependent on weight lifting and cardiovascular exercise. An eighty pound girl would likely focus more on building strength and therefore might concentrate on a light weight program.

Physical Education Curriculum Frameworks and Instruction Practices:

Standard 1- Students will understand the basic characteristics of physical growth and development, including body functions and systems throughout the life cycle and will acquire skills to promote and maintain positive growth and development.

Standard 2- Students will, by repeated practice, acquire and refine a variety of manipulative, locomotor and non-locomotor movement skills and will utilize principles of training and conditioning, will learn biochemics and exercise physiology and will apply the concept of wellness to their lives

Standard 3- Students will gain the knowledge and skills to select a diet that supports health ad reduces the risk of illness and future chronic diseases.

Lesson: The unit will be a four week program divided into four sections:

Section 1:

Students will read about the physical changes they are going through. This part of the unit will take place in a more traditional classroom setting. Students will be reading from books, listening to lectures, working in groups and completing worksheets. Activities during this part of the unit will include:

- a **think pair share** were students discuss the changes they believe all adolescents are going through
- an **anticipation guide** where students can look to their future and the potential fitness habits they wish to develop.
- a traditional worksheet where students develop understanding of terms related to physical fitness

Section 2:

Students will develop their own nutritional worksheet and the objectives they have for themselves during the unit:

Students will complete a worksheet about the goals they have for the unit.

Some examples would be:

- I will lose fifteen pounds of fat during this year.
- I will gain fifteen pounds of muscle.
- I will make my biceps 2” inches bigger
- I will lower my waist by one size.

Section 3:

Students will implement their program. This will be the body of the unit where students will be in the gym working on the program they have developed. The instructor will work with the students by offering more effective strategies, monitoring progress and assessing student participation. Students will be required to monitor there program as they participate in this stage. For example, if a student sets out to lose five pounds, they will have to weigh themselves a specified amount of times to see if they are succeeding in their program. During this stage, different types of resources will be utilized. Students will be required o participate in at least three of the five activities for at least one day during the unit. This will ensure students are affectively engaged by participating in different activities. The five activities will be:

- **Weight Training**
- **Treadmills**
- **Full Court Basketball**
- **Gymnastics**
- **Flag Football**

Section 4:

The final phase of this unit will ask students to reflect on their individual program. A final essay will have students answering the following questions:

- Did I accomplish the goals I set out for in the beginning of this unit?
- What did I learn from my program?
- Was my program a success?
- How did the changes I read about in class affect me?

Most importantly, students will have to answer the essential question as part of this essay:

- What is the importance of physical fitness?

The essay will serve as an assessment to the instructor as to what the students have taken from this lesson?

Final Assessment: As a final assessment the instructor will consider the student's work in the classroom, there participation in the engaging activity and the final essay.

Final Project

The final project for this unit will be for the students to make a significant change and report on that change according to the essential questions of the unit. They will reflect on what inspired them to make that change and whether or not they met with any resistance. They must also report on the final result. The change can range from an individual change toward a world change.

Examples of student projects include a fitness goal, revising the school schedule or structure, creating a greener school or community, cleaning up a neighborhood park, and working toward changing a law.

Midway through the school year, students will be presented with the following question: What are three things you want to change about your self, community and the world? From this they will decide what their final project will be. Students will be given the choice to work in a small or large group. Teacher approval would be necessary mainly to ensure that the size of the task matched the size of the group.

Because significant change takes time, students will need to begin work immediately. Also, due to the fact that the timing of the results can be unpredictable, assessment will be based on action toward change and student reflection on the process. Students will complete some work outside of school, but will also be able to use the change days for this project.

In the final presentation, students will be required to incorporate the two major questions in the unit as it relates to their chosen focus for change.

A final “Change Celebration” will be held to share student products with the community.

Culminating Activity

A final “Change Celebration” will be held to share student products with the community. This event will take place on a Saturday toward the end of the school year. Each group will draw a different presentation format: video, skit, song, poem, etc. They will be responsible for determining how to present their project within that format. In addition, there will be a gallery of project summaries that attendants can walk through. This will be set up like an art gallery so that people can peruse at their leisure. If possible, this display will be available after the celebration as well.

Students will also be responsible for advertising, media representation, organization, and refreshments. Some of these assignments will be supported in the content area and unified arts classes while others will be part of change day. Planning for this event will begin at the midway point once students have chosen their final projects. Parent involvement will also be encouraged.

Depending on the projects chosen, the presentations to the community may be particularly exciting. For example, if a group chose to clean up a park or recreation center, students may decide to hold the celebration at these locations. Someone who benefited from a project may be invited as a guest speaker. The possibilities are tremendous. The gallery of projects could be displayed at a local library or other town gathering place. Because we hope that some of the projects will be designed to better the community, it will be important for students to work to get the community involved in the final celebration.