

SECOND GRADE INTERDISCIPLINARY UNIT (S1)

Unit 1: Change is Everywhere!

Concept: Change

Essential Question: How and why do things change over time?

Deepening Questions:

How and why do people change?

What might cause a character in a story to change?

How has my community changed over time?

What changes can people make in their community?

How do we learn about the past?

What are some of the changes where I live?

How do the changing season and weather where people live affect their community?

How do living and non-living things grow and change?

Is change necessary for adaptation?

What causes non-living things to change?

Unit Overview

This unit is organized into three different sections: change in people and animals, change in places and change in things. In each section students will explore the concept of change through the disciplines of reading and language arts, math, social studies and science as well through connections to fine art pieces.

The big idea of section one is change occurs in the characters and people with whom I interact. Change is brought about in individuals after defining moments in their lives. Stories and narratives follow a sequential order that shows how events in life bring on these defining moments. The texts in this section expose students to characters and people who changed and invite them to connect these experiences to their own lives.

In this next section, the big idea is that changes occur in the place I live. Students delve into historical research about how their community changed and important figures in community change. They also explore changes in the environment by learning about seasons and weather. In particular, how changes in both relate to their community.

Finally, students will explore the change in living things connected to the big idea that change occurs in both living and non-living things. Students learn about changes in plants and animals and how they relate to life cycles. Then students will examine place value and how numbers can change based on digit in the correct place. Lastly, students will learn about states of matter and create mechanisms for initiating changes in the states of matter.

Academic Vocabulary

Author

Beginning, Middle, End

Conclusion

Digital graphic organizer

Digital sources

Introduction

Main idea

Paragraph

Poetry

Repetition

Research

Rhyme

Rhythm

Shared writing

Convey

Life cycle

Community

Past, Present, Future

Compare and Contrast

Quotation Marks

Past Tense Verbs

Story map

Hero

Traits

Weather

Seasons

Axis

Rotation

Tilt

Solid, Gas, Liquid

Place Value

Solution

Mixture

UNIT HOOK: (ART that shows change over time)

Picasso-study the artist, how did his art change and what happened so make his art change.

Read aloud the biography of Pablo Picasso and then visit the following website that details the different periods of Picasso's art. Students should recognize that Picasso's style of art what changed as he was influenced by different artists (such as his cubism movement which was inspired by the French postimpressionist artist Paul Cézanne, Picasso and French artist George Braque) to his blue period which was influenced heavily by his struggles as a new artist and depression.

Sad/Happy activity: On a t-chart, list things that make the students feel sad and things that make them feel happy. Then on post-it, ask students to draw things (influences) that are about each emotion. This is the beginning of creating art based in "influences."

<http://www.slideshare.net/ShariSteinJackson/pablo-picasso-for-kindergarten>

SECTION 1: CHANGE IN PEOPLE

Activity 1: Changing Character

Deepening Question: What causes characters to change in stories?

Character Traits: Read aloud the story *The Recess Queen* by Alexis O'Neill.

Use a story map to show what the problem was at the beginning of the story, what happened throughout the story and how the story ended. Readwritethink.org has an online tool students can use to help them create a story map.

<http://www.readwritethink.org/classroom-resources/student-interactives/story-30008.html>

Students should complete a character trait graphic organizer (attachment) on their own for Jean at the beginning and one for Jean at the end. Discuss things that influenced Jean to change throughout the story.

Assessment: Create an Epilogue

An epilogue or epilog is a piece of writing at the end of a work of literature, usually used to bring closure to the work. Basically, epilogue is a great way for students to write a summary of the story as well as bring in information about character traits.

Explain that they should: 1) reread/ skim their independent book, 2) discuss how the character changed by the end of the book, and then 3) write about what the character went on to do in the future. Remind students that a well-written epilogue takes into account how the character would have changed and behaved based on what the reader knows about the character. Highlighting consequences and results of story events.

Example of an epilogue:

<http://www.readwritethink.org/files/resources/lesson-docs/ExampleEpilogue.pdf>

Mean Jean and Grammar

Reread "The Recess Queen". Review two grammatical features with students, past tense verbs and quotation marks. Students can use a picture of Jean with speech bubbles to practice writing their own phrases using quotation marks. Review past tense verbs with the class by creating a t-chart and listed the past tense verbs from the text on one side and their present tense companion on the right. Invite students to add to the chart throughout the week (especially after reading any additional texts.)

Extension: Read *Bootsie Barker Bites* by Barbara Bottner (another book that show a change of character) can then use a Venn diagram to compare the two character.

Activity 2: Showing change of people in history

Deepening Question: How and why do people change?

Introduction:

*Read aloud-While learning about how characters change, a teacher read aloud of the story “The Chocolate Touch.” Students will not only learn about how a character’s perspective changes but it also leads students into the next section of the unit (a study of Milton Hershey.)

Story Summary: John loves chocolate more than anything else. When he finds the magical coin and turns it in at the candy store for a box of chocolates. His never-ending wish for chocolates is about to be answered. At first he enjoys having everything taste like chocolate. Then he loses his friend. But it takes his mother turning into chocolate before he realizes that there are some things in his life more important than chocolate.

Fractured Friendships: Before reading the book ask students: Can the best of friends ever become the worst of enemies? Can the worst of enemies ever become the best of friends?. Read the story *The Worst of Friends* by Suzanne Tripp Jurmain (Visit the site wegivebooks.org to view the book on an ipad or computer for free.)Resource book: *Those Rebels, John & Tom* by Barbara Kerley (show them at younger ages)

Book Summary:

John Adams and Thomas Jefferson were good friends with very different personalities. But their differing views on how to run the newly created United States turned them into the worst of friends. They each became leaders of opposing political parties, and their rivalry followed them to the White House. Full of both history and humor, this is the story of two of America's most well-known presidents and how they learned to put their political differences aside for the sake of friendship.

Students will use a Venn Diagram (attachment) to compare and contrast the two friends. Discuss with the students how similarities and differences can bring us together but they can also create issues in any relationship. Use Turn and Share to have students discuss times in their lives when they had a similar problem in a friendship.

Assessment: What caused their relationship to change?

Students will complete the Cause/Effect graphic organizer (attachment) that illustrates how the events of their life and their beliefs caused not only a rift in their friendship but also brought them closer in the end.

Additional Books about Fractured Friendships:

When Pigasso Met Mootisse by Nina Laden

Read aloud here: <http://www.storylineonline.net/when-pigasso-met-mootisse/>

You're Not My Best Friend Anymore by Charlotte Pomerantz

Chocolate Changes: The Study of Milton Hershey

Read aloud the book. *Milton Hershey: Young Chocolatier* by M.M. Eboch

Hershey started out having an extremely rough time in his family as well as in his school work. He dropped out of school in 4th grade. Hershey sought out different jobs including one in a printing shop. He continued to struggling with different jobs until he developed an interest in his job at a candy factory.

*It is important to note that Hershey changed the outcome of his life by working hard and perseverance despite never having finished the 4th grade. However, Hershey was living at a time when this was acceptable for young adults who could get jobs right away. Compare the differences then to life now.

Assessment- Overcoming Obstacles: Write about an obstacle you faced and steps you took to change the outcome. Start by having students complete their own story map to lay out their ideas. Use a writer’s workshop model to take students through brainstorming to the final draft.

Checking Comprehension: Too Much Chocolate
<http://www.readworks.org/passages/too-much-chocolate>

Extension:
The History of Chocolate DK Reader
Using the Hershey bar to teach odd and even (arrays)

SECTION 2: CHANGE IN PLACES

Deepening Questions:

- What are some of the changes where I live?
- How has my community changed over time?
- What changes can people make in their community?
- How do the seasons and weather change where I live?

Activity 1: Understanding communities have changed over time (Introduction)

Read the story *Ox-Cart Man* by Donald Hall and Barbara Cooney. Students are asked if the story takes place in the past or present. The teacher prods their thinking with the question, “How do you know?” The teacher explains that in order to prove the story takes place in the past they will need to find evidence in the illustrations and words of the story. Using a T-chart labeled “Illustrations” and “Words”, the teacher guides students in identifying evidence that this story took place in the past. Finally, the teacher writes the term ‘historian’ on a board or overhead transparency and explains that students have been working as historians in this activity because they identified evidence supporting their answer that the story took place in the past.

Navajo Weavers- HMH Journeys (Unit 5, Lesson 23): Navajo Weaver (1905) by Edward S. Curtis. Show the famous photograph and give a short history of Curtis and his photographs. Revisit the photograph and learn about the art of Daisy Taugelchee. She is the most famous Navajo weaver and was even honored on the U.S. Postal Service stamps in 2004. Her rug is also featured in the collection of art by Native Americans in the Denver Art Museum.
<http://www.navajotimes.com/entertainment/culture/2011/011311daisy.php#.U8gQVvldWPs>. Then read the story *The Goat in the Rug* by Charles L. Blood and Martin Link. Discuss the art of rug weaving and make connections between the story and Daisy Taugelchee: World's most famous rug weaver

Weaving a Rug: (bring in the vocabulary cards discussed on TE pgs. 220 and 221.) Students will learn about how to weave a rug using yarn (much of today is acrylic but you may be able to find some wool yarn.) Ask students to Pair/Share to discuss how difficult the task was, why did people have to weave rugs on their own, why are rugs not made this way today? Additionally talk about how weaving a rug is a kind of visual art. Many woven rugs are thought of as masterpieces.

Performance Task: Review the story *The Goat in the Rug*. Write down the step it takes for the Navajo to weave a rug. Students will write these as a set of instructions.

HMH Journeys: (Unit 5, Lesson 23): “Basket Weaving” by Becky Manfredini

Read the informational text about the Native American tradition of basket weaving. Ask students to compare the two texts (possibly use a Venn diagram) using text evidence to support their answers. Highlight the use of captions as a way to give additional information about the photograph and topic.

Students can experiment with how the Native Americans wove baskets.

<http://www.craftprojectideas.com/index.php/how-to/material-of-the-month/friendship-thread-june-2012/1067-woven-basket>

<http://www.thatartistwoman.org/2010/09/basket-weaving-using-recycled.html>

Activity 2: Learning about the Past

Becoming a Historian: Display the graphic (attached) on ways to learn about the past. Ask students to gather information about the past using a few methods shown in the graphic. Give each group of students a packet to use during their investigation (for example, photograph of farm, book about farm life in the past, sheet with website of a video with a person talking about farm life in the past, etc.) Students will use a graphic organizer (attached) to record any information or observations that found during their investigation.

Field Trip or Virtual Field Trip: Arrange a visit to a local history museum or invite a community member to visit your classroom. Distribute the graphic organizer for students to fill out (How We Learn about the Past). Students should record any information provided. After the visit, compile all of the graphic organizers together so students may have a cache of ideas to choose from when creating their own community digital museums later.

Activity 3: Community Change

Examples of Community Change: Read *The House on Maple Street* by Bonnie Pryor. Show showing students an arrowhead (or picture of an arrowhead) and an old broken china cup. In a Pair/Share activity, students discuss what they think these things are. Using the book, *The House on Maple Street* or a similar piece of literature, students determine what the arrowhead and broken cup have to do with the story. The class discusses the role of the two artifacts in the book. Students are given sequencing strips that contain story elements. Students order the strips chronologically showing changes in the community from the story over time. Using a variety of resources such as from the guest speaker from a local historical group or photographs taken of things in the historical museum.

Start from Scratch: Explain to students that in the past when the story took place, people often had to create something “from scratch.” The boy in the story had to make his own broom from birch branches. Pick one of the examples of an item/action that tells you the story is set in the past. Write about how that item/action has changed today. For instance, the girls uses wool and knitting to make a pair of mitten. Write about how that was done in the past and then write about how people get mittens today.

Community Change Poster: Using the community change diagram (attached) that shows specific categories in which communities change, students will draw upon information and resources they learned during their historical community field trip to organize their own poster of how their community change. Students should collect pictures (internet, etc.) or draw pictures themselves to place on their poster (resembling the community change diagram.) Invite students to also add another category of their own choosing. Students can form small groups where they can present an oral explanation of their poster.

Economics of Yesterday and Today: Give students a summary of what a gallon of milk, loaf of bread, etc. cost today. Give them summaries of what they cost about 20 years ago, 40 years ago and 100 years ago (approximately.) Ask students to make comparisons and discuss how and why the prices have changed? This may also be a good time to work in a math lesson on counting money.

How Communities Change: HMH Journeys Lesson 30: Read the anchor text *Now & Ben: The Modern Inventions of Benjamin Franklin* by Gene Barrett. Create a t-chart where students list NOW/THEN in specific areas listed in the book. Students will use this comparison to write a narrative on a specific community change they have observed or learned about in their own community. Continue by reading the information text *Steve Jobs: Inventor* and discuss the role that Jobs had at not only changing his community but changing the “technology community.”

Showing How Communities Change: Assessment: Using a tool found on [readwritethink.org](http://www.readwritethink.org), students will create a visual timeline showing how their community has changed over time. This would require the teacher to create a file to access pictures of the local community over time.

<http://www.readwritethink.org/classroom-resources/student-interactives/timeline-30007.html>

Performance Task: Start by asking students to create a visual for what their community might look like in the future (refer to the Community Change diagram.) Ask them to consider things like past changes, resources, etc. Each student will then create a travel brochure that showcases their community in the future.

Factors that Cause Community Change: Brainstorm a list with students what may have been factors that led their community to change (building a highway, etc.) Ask them to give evidence from what they have already learned about their community.

Students will explore the causes for change in other communities by reading books from the following list:
Hope for Haiti wegivebooks.org (book about how the earthquake in Haiti changed the community)
Energy Island by Allan Drummond (community harnessed the wind and changed their world)
Sky Dancers by Connie Ann Kirk (steelworkers building skyscrapers in NYC)
Sweet Music in Harlem by Debbie A. Taylor

Assessment: Students will select the most important artifacts from their community history research to organize and annotate in a timeline depicting the history of their community.

Activity 4: Heroes in My Community

Heroic Traits: HMH Journeys Lesson 20: Using the anchor text *Dex: The Heart of Heroes* by Caralyn Buehner, students will create a web about the character traits of a hero. Additionally, after reading the informational text *Heroes Then and Now* can explore the role of heroes in their communities, why those roles may have been different in different communities, and draw conclusions about how the role may have changed by the character traits of a hero have not.

Who are Our Heroes?: Students will learn about how members of a community worked to make positive changes in the communities. Choose from the biographies listed about people who are a hero in their local community or research and choose a few local heroes from the community in which you teach:

Luis Soriano: mobile library in the community who travels around by burro

<http://www.cnn.com/2010/LIVING/02/25/cnnheroes.soriano/>

Milton Hershey

Hannah Taylor

http://www.myhero.com/hero.asp?hero=Hannah_Taylor_Brick07

Ben Carson

List of Local Heroes that are kids:

<http://www.generationon.org/kids/meet/hasbro-community-action-heroes/2014>

Gabriele Eggerling

<http://www.ocregerister.com/articles/gabriele-321518-books-hero.html>

Heroic Trait Connections: Write about a time you or someone you know showed each trait. (Pick a hero you read about above. Fill out how that person match some of the traits listed on the chart.)

Performance Task- Honoring Heroes: Students will complete one of the tasks below. They should concentrate on a background summary of the hero, the heroic traits of that person and how the person initiated change in their community. Use a rubric to assess the objectives of the lesson.

Hero Trading Card

Hero Award

Hero Letter of Appreciation

Persuasive Hero Essay

The Hero in Me: Give students an opportunity to think about times in their own lives when they faced a challenge in order to help someone. Bring in an empty picture frame at least 8" x 10" large, and remove the glass and backing. Seat children in a circle and pass the frame around. Encourage each student to look through the frame and describe how he or she went out of the way to come to someone's aid. For example, "I was helpful when I made friends with the new kid," or "I was helpful when John fell off his bike and I brought him to the nurse." Once everyone has had a turn, have classmates describe helpful qualities about each child in the frame.

Activity 5: Our Community Museums

Community Class Book

Students create a picture book that synthesizes their learning about the history of their local community. Students are directed to the class charts that have been maintained throughout the unit and determine which topics to include in the book. The class sequences in chronological order the chosen topics in the community's history. From the sequenced topic list, students select one topic of interest and write and illustrate a short historical narrative. Student work is collected and organized into a class picture book.

Digital Museum

Students will create a digital museum (videolicious) where they have compiled artifacts, interviews, illustrations, etc. of their community. They will give a voice over and explain each piece and how it relates to community change. Use a rubric to evaluate students on their digital museum as well as overall knowledge and presentation about their community's past.

*****In the next 3 activities, you can refer MMH: A Closer Look Unit D- Weather and Sky**

Activity 6: Changes in the Natural Environment

HOOK: *Haystacks* by Claude Monet

Invite students to learn about the 25-painting series concentrating on how Monet intended to paint the same haystacks showing them at different times of the day, different weather occurrences, and different seasons of the year. Show several of Monet's haystacks and ask students to label each drawing (winter, foggy, etc.)

Choose One:

4-Box Drawing: Have students fold a piece of paper into 4 sections. Ask students to start by drawing a tree using only a pencil in each of the four boxes. Ask students to show each tree during each of the four seasons (winter, spring, summer, fall). Encourage students to use a selection of seasonal appropriate colors to depict their scene (following Monet's lead.)

OR

Sketch Me! Ipad app: This activity can also be adapted by having students take a digital picture of tree. Sketch Me! Is a free app that allows users to take a photo and then convert the image to something that looks like a drawing. Students can print these out and use them to "color".

In the following sections, students will use the learning model of STEM to delve deeply into the different kinds of weather in different communities including their own, how and why weather is measured and reported, the changes in the Earth's sky and its impact on seasons, and how seasons are different in various communities.

Activity 7: Changes in the Earth's Environment

Kinds of Weather: Students will complete a KWL (Know, Wonder, Learn) about weather.

Read the book *On the Same Day in March: A Tour of the World's Weather* by Marilyn. Discuss with students how the weather can be very different in different communities.

Students will keep a weather journal to record the weather in their community and in various communities around the world. Each day, students will track the weather, temperature, sunrise/sunset, phase of the moon and any observations of at least 2-3 different communities as well as their own. To build background knowledge, students will make a visual of the kinds of weather/precipitation.

Colors in Art/Weather Changes: View the Bruegel, Caillebotte, and Seurat images. As the class studies each piece, ask the students how the artist creates a sense of warmth or cold, dryness or wetness in the painting. As the students use adjectives and adverbs in the conversation, write them down under the appropriate category on a whiteboard or chart paper. Use these words to create and expand sentences (e.g., “The artist painted snow. The talented artist painted snow with cool colors. Using an icy blue color, the artist painted a snowy scene.”). Extend the activity by using the word bank to create free-form poems to go with each painting.

Water Cycle: Using A Closer Look (MMH text book), follow the directions on TE p. 232 to create an inquiry activity for students. Students will watch the following Bill Nye the Science Guy video (link: <http://www.gamequarium.org/cgi-bin/search/linfo.cgi?id=8362>).

Review the steps in the cycle with students and create an anchor chart. Students will create a foldable detailing the four phases of the water cycle. Pictures are on the following site:

<http://theinspiredclassroom.blogspot.com/2012/01/about-to-start-weather.html>

Weather Changes (Clouds/Storms)

Students will investigate clouds using the story *The Cloud Book* by Tomie DePaola. They will use real photographs of clouds and practice identifying their type. From there students will write a brief description of each cloud type. Then students can investigate different types of storms and other wild weather events using the section in A Closer Look.

Webquest on Wild Weather: Students will take part in a Wild Weather Web Quest. They will collect information on your wild weather, organize it into a project as a group, and share what you learned with the class. Use the following instructions on the link to help students participate in a shared research project in types of weather.

<http://goshenschoolsny.org/Schools/SAS/TeacherPgs/mwest/Weather%20Webquest.cfm>

Weather Tool Inventor: Ask students to list several of the weather types they learned about earlier (rain, wind, snow.) They will then brainstorm an invention that can be used to measure each one. They should write a small description and include an illustration (using labels.) Each student will pick their best invention to present to the class.

Review the actual tools for measuring weather (print the pictures in the attached link.) Then have students sort each picture according to its description and use.

http://education.nationalgeographic.com/media/file/0749_Worksheet_portrait_Illustrations.pdf

***Teachers: For ideas on specific weather tools, see *Hands-On Projects about Weather and Climate* by Krista West

STEM challenge:

1. Create a working weather tool to measure wind.
2. Record 5 days’ worth of measurements and show your information on a bar graph.
3. Analyze your results and write a report summarizing your findings.

Assessment- Weather Report: Based on information collected from your tool as well as other information from your weather journal, create a weather report for your community showing the predicted weather for the next 5 days. Then use an app to record a short video giving this weather report to your community. Encourage students to create a visual as well as focus your report on the intended audience (i.e., report on any sporting events and the weather during game time.)

Activity 8: Changes in the Sky (day and night)

Day/Night Graffiti Walk: Assign students to groups in which they will create two posters (Night and Day). “Graffiti” is anything that the students associate with the term (pictures of stars, sleeping, beach, going to school). After

each group is finished, place all the Day posters on one side of the room and Night posters on the other. Students can tour the classroom on a Graffiti Walk (groups draw posters of Day and Night; can be anything)

Kinesthetic Model: A Closer Look (MMH text) includes a brief activity where students can act out why they can't see the sun at night (TE p. 253.) Use the following text pages to help students better understand the movement of the Earth and sun through the sky. Be sure to use a globe and light source to demonstrate this concept.

<http://www.scholastic.com/parents/resources/free-printable/science-printables/does-moon-shine>

Moon and Stars: Read *Starry Sky* D.K Reader (wegivebooks.org.)

After reading this informational text as a class students will create a t-chart (Moon is.../Moon is not...detailing) information they learned from the text focusing on providing textual evidence.

Phases of the Moon:

http://www.scholastic.com/teachers/top_teaching/2011/03/ready-to-edit-teaching-the-moon-phases-seems-to-be-one-of-those-skills-that-is-taught-across-the-grade-level

Solar System: Read the book *Regards to the Man in the Moon* by Ezra Jack Keats (wegivebooks.org). Brainstorm with students a list of items they would find in "space" (our solar system.) Refer to A Closer Look (TE p. 274-287) for additional activities.

Assessment- Making a Model: Students will then work in a group (about 10 students) to create a human model of the solar system; each student will play a different role (sun, moon, Earth, other planets) to show the function and movement of each through the solar system. Have students particularly concentrate on how the sun affects the Earth, the Earth's orbit around the sun (and the 4 seasons) and how the moon/Earth interact.

Activity 9: Seasonal Changes

Appreciating Art: Artists often convey a sense of season in their depictions of flowers or trees. Ask students to study the Tiffany image, van Gogh's *Mulberry Tree*, and the work titled *Snow-Laden Branches*. Note that these works were created on three different continents at around the same time period. Ask students to discuss similarities and differences in these artists' techniques for depicting the seasons.

What Causes Seasons?: Read the informational text *Sunshine Makes the Seasons* by Franklyn M. Branley.

Model for Seasonal Change: Using a Styrofoam ball, students will create a simulation of the Earth and its axis. Using a flashlight as the Sun, students will place a sticker on the Styrofoam ball and experiment with how the light shines on the sticker (their community.) Record students' observations about the position of the light directing them to realize the Earth is tilted and this causes the sun to be nearer/closer to the Earth. Continue the experiment to show the Earth's orbit around the sun. The following website has a great description of these types of activities as well as a great visual to display for students.

http://education.nationalgeographic.com/education/activity/the-reason-for-the-seasons/?ar_a=1

Seasons in our Community:

Focus a discussion on the characteristics of seasons in your local climate. Discuss activities that your students might associate with each season. Talk about how one of the season's activities might help the local economy more than others by generating research questions such as, "Which season is most important to our community?" Use digital resources and speakers who have visited to gather information. Conclude the research and communicate findings with a class write such as: "Research a sport or activity in your community that relates to a specific season. Create a nonfiction text about the season, the sport, and the way it affects your community."

Pic Collage: Using the app Pic Collage, students will record 4 different season (possibly taking photos of book pages or dressing like each season.) They can write a caption for each picture based on the weather kinds for each season in their community.

Assessment for Activity 8 and 9: Making a Model: Students will then work in a group (about 10 students) to create a human model of the solar system; each student will play a different role (sun, moon, Earth, other planets) to show the function and movement of each through the solar system. Have students particularly concentrate on how the sun affects the Earth, the Earth's orbit around the sun (and the 4 seasons) and how the moon/Earth interact.

SECTION 3: CHANGE IN LIVING/NON-LIVING THINGS

Deepening Questions:

How do living and non-living things grow and change?

HOOK: The Hay Harvest: Using three different paintings (*The Hay Harvest* by Camille Pissarro, *The Hay Harvest* by Henry Schouter, and *The Hay Harvest* by Pieter Bruegel). Looking at three different paintings, ask students to identify living and non-living things. Ask them about "changes" they notice in all of the paintings (how the grass has changed to hay based over the season, people are wearing different clothes as styles of clothes have changed, farm equipment has changed, etc.) Then specifically concentrate on how the living things in the paintings have changed.

Introduction to life cycles: The following smartboard lesson gives a great overview of life cycles in general.

<http://exchange.smarttech.com/search?q=%20human%20life%20cycle&carousel=true>

(scroll down to "Life Cycles" submitted by E. Schneider)

Activity 1: Change in Animals

Animal Groups: Using the section in MMH's *A Closer Look* (student book pages 54-59.), students will learn about the different animal groups and animal classification. Provide a series of photos of animals for students to sort and classify into the different animal groups. Identify their reasons for the classification.

The Mysterious Tadpole by Steven Kellogg: Read the story. With students, review the story structure (characters, setting, plot, problem, solution) and have students complete a story map. Provide students with the prompt "How do you know Alphonse is not a tadpole?" Students will use textual evidence to cite examples of how they know.

Exploring Life Cycles: Students will read from a collection of informational texts including HMH Journeys *Frog Eggs to Frogs* (Journeys Lesson 26) and *See How They Grow: Frog* (wegivebooks.org). Discuss the use of diagrams (text feature) with the class as a way to show how something works. Create an anchor chart that displays each stage of the life cycle of a frog and a description of the stage.

Details of an Animal Life Cycle: In HMH Journeys Lesson 21, students read the anchor text *Penguin Chicks* by Betty Chatham. Review the text with students, having them identify the main idea of the text and give three details that give more information about the detail. The lesson also requires students to look at a digital e-book that takes them through looking at emperor penguins (how they look, habitat, etc.) It guides students through using digital sources (such as a website) to gather information. If the selection is not available, a similar website may be used.

Collaborative Research: Investigate life cycles of other

Life Cycle of a Butterfly

Life Cycle of a Chicken

Life Cycle of a Lamb

Divide students into small groups. Each group will be responsible for researching the life cycle of each animal. The group will then collect illustrations or draw parts of the life cycle of a frog. Students should also write short description of each stage during the life cycle. Using an app such as Videolicious, students can create a slideshow/video of their researched life cycle complete with a voice over using the descriptions they wrote. Each

group will present this to the class. As a follow up, each student will pick two animals' life cycles and use a Venn diagram to compare/contrast.

Staying Alive: Using the section in *MMH's A Closer Look*, students will learn how animals change in order to adapt to their environment and how they protect themselves from danger.

*Possible HMH Journeys Connection:

The Dog That Dug for Dinosaurs by Shirley Raye Redmond. In HMH Lesson 27, students probe the essential question "How can you learn about animals that lived long ago?" An investigation into the life cycle of a dinosaur as well as a tie to being a historian and how communities (the Earth) change over time brings Section 2 and Section 3 of the unit together.

Activity 2: Change in Plants

Hook- A More Beautiful Community: Start by asking how plants make the world more beautiful. Ask students to give specific examples from their community. Read aloud the story *Miss Rumphius* by Barbara Cooney. Lead students through various comprehension questions ending with "How did Miss Rumphius change her community and make it more beautiful?" Students can give examples of how they can use plants/flowers to make their community more beautiful. They will write/create a plan.

What Living Things Need: Using student pages 20-27 in *A Closer Look*, students will learn about what plants need in order to live. They will be able to diagram plant parts and how those plants work to provide what the plant needs in order to survive. This would be a key part of the section where experiments on plants (plants not getting sunlight, water). Students may also grow their own plants and study how they grow over time (consider using a journal to record measurements and observations as well as the steps in the scientific process.)

Plants Make New Plants: From Seed to Plant: Taken from HMH Journeys Lesson 25, students will begin by reading the story *From Seed to Plant* by Gail Gibbons. They may also benefit from watching the youtube video with Gail Gibbons (<http://www.youtube.com/watch?v=LI7fB5AGWm8>.) After reading the story, students will review text and graphic features such as caption, labels, charts and diagrams. Complete a chart as a class of the features they found in From See to Plant, their location and their purpose. Gather several information texts and divide students up into pairs. Each pair will pick one book and create their own Text/Graphic Features chart. Continue with the next book in the lesson Super Soil where students can make the connection between what plants need and how they grown. Compare the two texts using a Venn diagram.

How Plants are Alike and Different: Using student pages 38-43, students will learn about plant traits, how plants adapt to their environment, etc. The article "The Power of Periwinkle" on page 44 and 45 is a great resource that helps tie students to how communities are changed (both positively and negatively).

Assessment-Writing an Internet Article: Students will pretend they just discovered a new species of plant. They can begin by brainstorming information about the plant as if they have studied it as a scientist (what is it like where it grows, what do the seeds look like and how are they spread, fruit or vegetable/flower/plant, possible uses, etc.). They will then write an article similar to ones found on the internet (show several examples

Activity 3: Change in Quantity and Numbers

Students will investigate how numbers change and grow specifically related to place value and the use of zero as a place holder.

Reasons for Place Value: Give students a set of 30 objects. Distribute a set of number cards (only 1-9). Ask them they need to make a number model for the set but cannot use zero. Read the book *A Place for Zero* by Angeline Lopresti.

Using Base-Ten Tools: Introduce the use of a flat, long and cube. Students can explore the quantity each represents by counting and then labeling Ones, Tens and Hundreds). Students will create a foldable that gives the label and block (flat, long, cube) and then draw a picture of the quantity they represent in an array.

Representing Numbers: Give each child a set of number cards (0-9) and a place value mat. Display an assortment of base-ten tools (3 flats, 5 longs, 2 cubes.) Have students place their number cards on their place value mat. Create a number model asking the questions: How many ones?, How many tens?, How many ones?. Reverse the process by giving students a 2- or 3- digit number and ask student to show the number by placing base-10 blocks on their place value mat.

Importance of Place Value: Reread the story *A Place for Zero*. Revisit zero's role as a place holder. Given a set of base ten tools such as 2 flats and 2 cubes, ask students to give provide a number model based on their observations on the place value mat. In the example, students should observe that zero is necessary to represent the amount in the tens place. Otherwise the number would be 22 and that is not the quantity. The reverse can be taught when students are given a number (408) and use the place value tools to display the amount. Using zero changes the quantity from 4 longs and 8 cubes (48) to 4 flats and 8 cubes.

Comparing two- and three-digit numbers: Write the numbers 549 and 547 on the board. Ask students to read the numbers and then ask which one is greater? How can one tell? Use two place value mats and break the numbers down using base-ten blocks and look compare the quantities in the specific places. Provide a series of numbers for students to practice with and then they make work in pairs to complete a worksheet comparing numbers.

Place Value Mat Card Games:

War: Shuffle the cards and place the deck number-side down on the table. Each player draws 2 cards from the deck and use them to make a larger 2-digit number. The player with the larger number takes all 4 cards. The game is over when all the cards have been used. The player with more cards wins.

Activity 4: Change in Matter

The Snowy Day by Ezra Jack Keats: Read aloud the story and ask students to think about "water" in this text. See if they can identify where water exists in the story (snow-solid, melted snowball-liquid, steam from soup-gas). They may even be guided to realize that matter changed from solid to liquid as Peter placed the snowball in his pocket.

Other Picture Books: The following link contains a list of picture books by famous children's authors and science experiments relating to teaching the states of matter. Select from any of these activities as a hands-on science experiment.

<http://origin.library.constantcontact.com/download/get/file/1102037602923-579/States+of+Matter+Read-Aloud+outline.pdf>

Describing Matter: Provide each group of students with a cup of crackers or basket of materials/pictures. Lead students through student pages 296-299. Create an anchor chart students can refer back to that shows the properties of matter (size, texture, mass/weight, shape, color.) Provide each group of students with a cup of crackers or basket of materials/pictures. Given a chart, students will draw a picture of the item and record a few words about its texture, size, shape, weight, color, etc. NOTE: students will learn about other observable properties of matter (density, flexibility) during a hands-on experiment in a latter activity.

Solids, Liquids and Gases: Using Lessons 2 and 3 in *A Closer Look*, students will learn about the properties of each state of matter. As a class, create a web for each kind of matter based on information provided in the text. Then write a description using the ideas mentioned in the web. Students can then create a Foldable in which students label the front flap with the state of matter (solid, liquid, gas) and a summary of its properties on the inside.

Observable Properties of Matter: Student groups will be given many different items or pictures (wood block-solid, picture of helium balloon-gas, plastic container of oil-liquid). They will work together to classify them into the different states of matter. As a class, create a web (example shown on this site: <http://allsmilesin2ndgrade.blogspot.com/2013/09/properties-of-matter-anchor-chart.html>) of all of the different observable traits of matter. Then, they should create a chart listing observable characteristics of matter (see anchor chart discussed above) and conduct observations on each item. Students will record their findings on the chart.

Stages of Matter and the Water Cycle: Review with students the water cycle. Explain to them that water exists in three different states. Using the image of Snow students will understand how water moves through the water cycle and changes into the different states of matter
Games involving Matter: <http://science.k12flash.com/statesofmatter.html>

Changes of State: Create an observation activity with a teapot. Prompt students to ask questions about questions about how matter changed from one state to another. Read about the different ways in which matter changes. Lead students to understand how applying heat to matter can change its state.

Changing Solids into Liquids and Back! Watch the video on how crayons are made: <http://www.sciencechannel.com/tv-shows/how-its-made/videos/how-its-made-how-crayons-are-made.htm>. Using left over crayons and a silicon mold, have students break crayons into little pieces to place in the molds. Ask them to make predictions on applying heat and the amount of heat. Place the molds in different places exposing them to different amounts of heat (direct sun, blow dryer/room heater, microwave, oven.) If these tools are not available, take videos to show to students the application of heat in each setting. Students will realize the amount of heat needed to change the state of matter is important. They can also observe that cooling a liquid can change the state of the matter (the liquid wax in the crayon turning back into a solid.) You may also extend the activity with the experiment shown on student page 331 (possibly adding crayon to the experiment) to show that different solids have a different melting point.

Mixtures and Solutions: Review A Closer Look Lesson 3 on Mixtures. Give students note cards containing different solutions, elements, and mixtures. Ask students to sort the cards and distinguish which are mixtures and which are not. Have the entire class create a post-it graph of their findings in the front of the class. Students should then write a short reflection based on the class's post-it graph.

Set up stations around the room. Each station should have a different mixture and a set of various tools used to separate those mixtures. Each station will focus on a different method of separating. Students should practice finding the right tool for separating each mixture and then remixing and separating out the mixtures again. Have students record their observations and findings as they visit each station.
Examples of mixtures: Coffee grounds and water, beans and rice (uncooked), different kinds of coins, etc.
Examples of tools: Filter paper or a French press, colander, sifter, magnet, etc.
Bring the class together to discuss which tool worked best with each mixture. Explain why certain tools don't work with certain mixture. And discuss the different types of mixtures the students encountered.

STEM Activity: Create a superhero/heroine with special powers such as freezing, squeezing, melting, tearing, dissolving, etc. Then create a comic strip showcasing the unique power of the superhero/heroine. Include details of how the superhero/heroine uses the superpowers to change 3 different types of matter.

