

SketchUp: Creating a Setting

5-12 Grade Language Arts



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1. SKETCHUP

Primary Resource: SketchUp Platform

Adapted by: Edutopia, Read Write Think, Fractus Learning

1.1. INTRODUCTION

Think of your favorite book or movie. Imagine the main characters, their choices, and the effects of those choices. Think about the parts that stunned you, made you shriek, and made you giggle. Now think about that story taking place on Mars. Does the plot still make sense? Setting is a major part of a story. It can affect plot, atmosphere, or mood of a specific scene. Setting defines what can and cannot happen in a story. In this lesson, students will learn the components of setting, draw the setting of a text, and gather evidence to justify their thinking.

Furthermore, students will take components of setting, drawing of a setting, evidence to justify their setting, and produce a project in SketchUp. SketchUp is a way for students to visualize, create models and design full scale 3D environments.

By the end of this lesson, students will understand the components of setting, provide evidence to justify their ideas, and use Sketchup to demonstrate their recognition of setting. This lesson will require perseverance and complex thinking. Students will read closely and gather evidence from the text to support their project. Finally, programming, logical thinking, problem solving and presentation skills will be developed.

1.2. MATERIALS

Language Arts Lesson

- *Tuck Everlasting* by Natalie Babbit (Excerpt Chapter 1)
- *Water Hole Waiting* by Jane Kurtz and Christopher Kurtz
- Picture Books with Well Developed Setting
http://www.readwritethink.org/files/resources/lesson_images/lesson107/107BookList.pdf
- 2 Setting Maps:
http://www.readwritethink.org/files/resources/lesson_images/lesson107/3ElementsofSetting.pdf
- Blank Paper
- Pencil
- Projector

SketchUp Project

- Computer / Internet Access
- Sketch Up Platform
- *Tuck Everlasting* by Natalie Babbit (Excerpt Chapter 1)
- Blank Paper
- Pencil/Scissors/Glue
- F1 Ferrari F14-T (3D Model out of Blender) Video Clip: <https://www.youtube.com/watch?v=Ot5CLbdZV4k>
- SketchUp speed drawing – Super Mario Brothers Video Clip: <https://www.youtube.com/watch?v=ZrwufolVfdI>
- Interested in a career in animation Video Clip: <https://www.youtube.com/watch?v=vsfGF-irwHQ>
- What is SketchUp Video Clip: <https://www.youtube.com/watch?v=a5P5R8u74H8>
- 4 SketchUp tutorials: <http://www.sketchup.com/learn/videos/58?playlist=58>

1.3. CONTENT FOR SKETCHUP

1.3.1. CONTENT FOR SKETCHUP

The content the students will learn in this example lesson will be about setting in language arts but the content can be altered to any content area (e.g., science, social studies, mathematics, and language arts). Students could create a 3D Model illustrating specific concepts in all content areas. For example, in mathematics, students could create a series of three-dimensional solids that will tessellate; in science, students create an atomic model of a molecule that is being investigated; or in social studies, students could create a historical figure's house and use details from texts to support the model.

1.3.2. LANGUAGE ARTS CONTENT (EXAMPLE) 3-5 GRADES

Goal: Students will read, annotate, and gather evidence from the text to generate a setting from a text (Students have been introduced to setting and how to gather evidence before this lesson.)

Assess prior knowledge: Teacher will read chapter one of *Tuck Everlasting* by Natalie Babbit or a picture book with a well-developed setting. Students will draw the setting they picture in their mind on blank paper.

New Knowledge:

Read *Water Hole Waiting* by Jane Kurtz and Christopher Kurtz aloud to the class or another picture book that illustrates well-developed setting.

After reading the story, the teacher will explain the three elements of setting development. Students will write the following notes in their reading journals.

- **Place:** Where does the story take place?
 - Place might include things such as city, state, country, castle, playground, ship, mountains or stadium.
- **Time:** When does the story take place?
 - Time might include clues to let us know if it is afternoon, evening, or future, colonial times, or clock time.
- **Environment:** How would you describe the place? What are the habitat and weather like? What plants, animals, and other objects are in that place?
 - Environment might include details that describe weather, the noise level or darkness.

Students will create a setting map (Figure 1) in their reading journals or teacher will distribute a setting map template (included in the Resources section below). The setting map will be projected on the board for students to watch as teacher model show to fill it out.

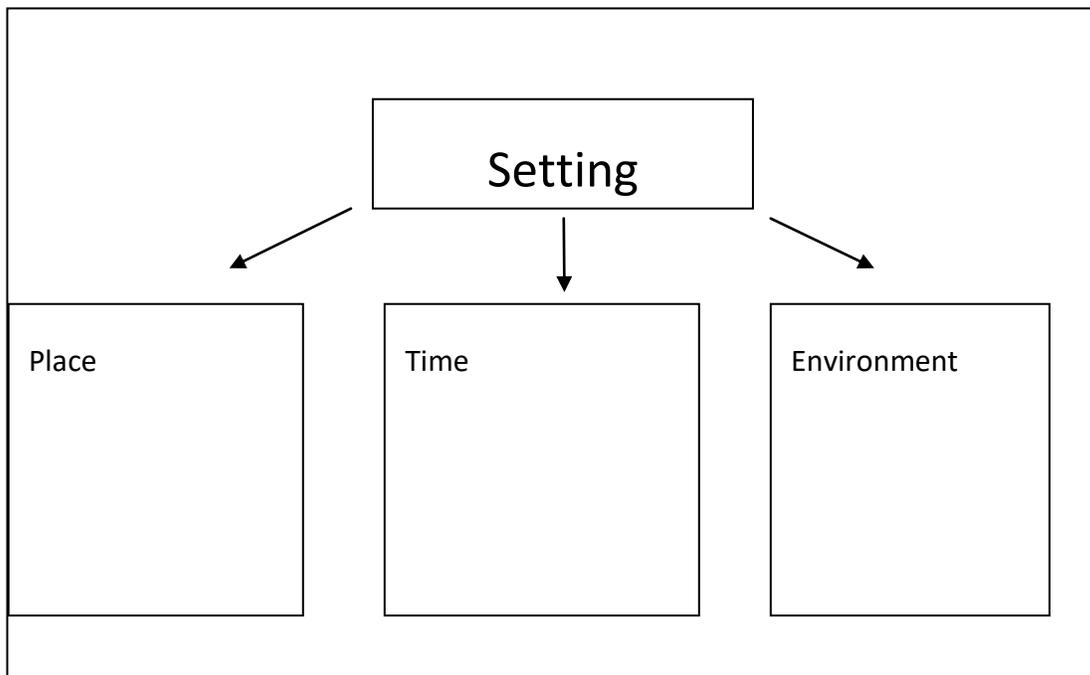


Figure 1 Setting Map

Ask students to identify examples in the picture book that illustrate the development of setting in the story for the first element (place). For example, in *Water Hole Waiting*, the setting is in a water hole on an African savanna. As students come up with examples and words from the text, put them on the board. Have the students copy the notes on the board in their reading journals:

- Guiding questions
 - How can you tell the watering hole is in Africa?
 - How can you tell where in Africa the watering hole is? (It is not in an African city.)
 - What can you tell about where the watering hole is from the book's illustrations?

After students and teacher have filled in the first element with details from the text, move to the second element on the chart (time). Return to the text and look for details that indicate when the story takes place, such as sun rising and falling in the sky. Record observations on the chart.

Finally, move to the third element and ask the students how they would describe the environment. For example, in the text, ask students what the day is like on the savanna. Have them use their sensory details. They should quickly point out that it is very hot and dry. Note the observations on the setting map, and use the book to find reinforcing quotations and illustrations.

Ask students to identify the techniques the book's author used to develop the setting.

- What words and phrases does the author use to help you learn where and when the story takes place?
- What plot events do the author use to help you learn more about setting?
- How do the illustrations help you learn about setting?

Differentiation: Younger students will give examples and details from the text while older students will give examples along with quotes, words, and phrases from the text.

Apply Knowledge: Have the students get into pairs and pass out a picture book or excerpt that has a well-developed setting to each group. (Check the Resources section below for a list of picture books and novels that have well-developed settings.)

Students will read closely, annotate the text, and fill out a setting map in their journals or distribute a template to the class. The teacher will facilitate and guide groups as they work on their setting map.

Generalize: Students will complete the exit ticket below.

3 THINGS I LEARNED ABOUT

-
-
-

2 WAYS I CONTRUBITED

-
-

1 QUESTION I STILL HAVE

-

1.4. PROBLEM

Congratulations! You have opened a new business in architecture and have your first customer! Your client would like to live in the same setting as his favorite book. Your job is to read, annotate, fill out a setting map, and use evidence from the text to create a rough draft drawing of the setting. Finally, construct the setting on SketchUp to present to your customer and to make sure you have everything he wants before you send off the plans for construction. What will you build? What items will you put in your setting? What colors and textures will you decide?

1.4.1. DIFFERENTIATION

Beginner: Students will gather evidence from the text, fill out a setting map, [create a rough draft drawing](#), and use SketchUp Warehouse and a variety of shapes to design their setting. Every piece will include text that will justify why it is in the setting. Please refer to [setting project](#) for more details.

Intermediate: Students will gather evidence from the text, fill out a setting map, [create a rough draft drawing](#), and will use SketchUp to draw some of their setting along with using the SketchUp Warehouse to help design their setting. Every piece will include text that will justify why it is in the setting. Please refer to [setting project](#) for more details.

Advanced: Students will gather evidence from the text, fill out a setting map, [create a rough draft drawing](#), and use SketchUp to draw some of the project along with using the SketchUp Warehouse to help design their setting. The setting will be more detailed. For example, a cottage will be drawn with items inside the house along with trees on the outside. Every piece will include text that will justify why it is in the setting. Please refer to [setting project](#) for more details.

1.5. SKETCH UP PROJECT

1.5.1. DAY 1

Introduce 3D Modeling

3D modeling or 3D computer graphics are works of graphic art that are created with the aid of computers and specialized 3D software. Filmmakers, artists, designers, and architects all use 3D modeling software to create animations, computer games, virtual models, sculptures and design ideas associated with traditional crafts.

Take time to discuss real world applications and the impact of 3D modeling. Be sure to discuss the kinds of ideas that will really connect with your students (think about what kinds of industry

are prevalent in your area and what kinds of careers students might be interested in). Here are some examples: The design process of a sports car, creation of favorite animated film, architectural modeling behind the world's largest skyscrapers and building. Below are a few videos that could be shared to help with this discussion:

- [F1 Ferrari F14-T](https://www.youtube.com/watch?v=Ot5CLbdZV4k) (3D Model using Blender):
<https://www.youtube.com/watch?v=Ot5CLbdZV4k>
- [SketchUp speed drawing](https://www.youtube.com/watch?v=ZrwufoIVfdI) – Super Mario Brothers:
<https://www.youtube.com/watch?v=ZrwufoIVfdI>
- [Animation careers](https://www.youtube.com/watch?v=vsfGF-irwHQ): <https://www.youtube.com/watch?v=vsfGF-irwHQ>

Introduce SketchUp

SketchUp is a 3D modeling computer program for a wide range of drawing applications such as architectural, interior design, civil and mechanical engineering, film, and video game design.

Students will watch short video clip explaining Sketchup:

<https://www.youtube.com/watch?v=a5P5R8u74H8>

Play

Once Sketchup has been introduced, it is time to let students explore. Let them roam free and have fun. A great place for them to start is to let students download and build with some of the example models from SketchUp's 3D Warehouse:

<https://3dwarehouse.sketchup.com/index.html>

1.5.2. DAY 2-3

Tutorials

The SketchUp community offers four tutorials. The students will complete the tutorials to further explain how to use SketchUp: <http://www.sketchup.com/learn/videos/58?playlist=58>

- It is important that students understand how to pause and rewind the videos.
- The younger students might need more support. The teacher may model how to go through a tutorial and have the students practice along.
- Students working independently may want headphones for the tutorials.

Once students learn the basics of SketchUp, have them explore, play, and have fun with the new software.

1.5.3. DAY 4-5

Start Small

It is important to set realistic expectations when students begin to model in SketchUp. Do not stifle their creativity but curb their ideas to start simple and expand from there. For example, want to build a car? Start with a wheel. Want to build a mansion? Start with a cottage. This will help prevent students hitting their frustration level while also helping build confidence in their ability and enjoying the creation process.

Students will pick one small item of their choice and use SketchUp to design.

1.5.4. DAY 6-7

Setting Project

Students working in pairs or individually will re-read the first chapter of *Tuck Everlasting* by Natalie Babbitt. (The text can change depending on what students are investigating.) Students will fill out a setting map to help visualize the text. Finally, students will draw a rough draft setting on blank paper.

The students will receive a paper copy of chapter one from *Tuck Everlasting*. They are to cut the text apart, glue on the actual text to their picture to prove and justify why things were drawn in their setting (see Figures 2 and 3). (This lesson is adapted and images are taken from [Teaching in Room 6.](#))

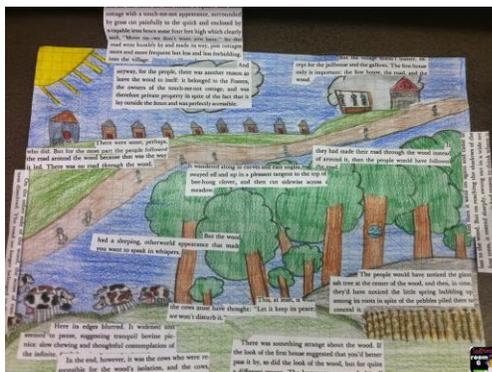


Figure 2 Cutting Up the Text

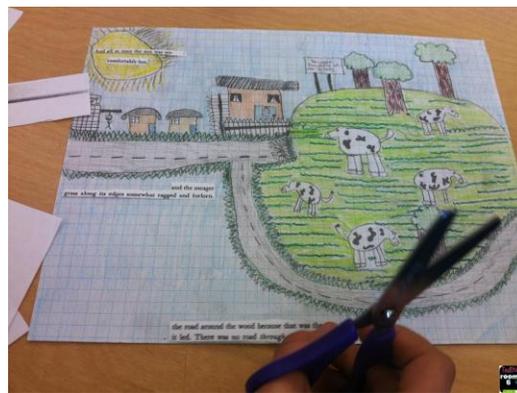


Figure 3 Cutting Up the Text

Finally, students will draw the setting and label each part on SketchUp (see Figure 4).

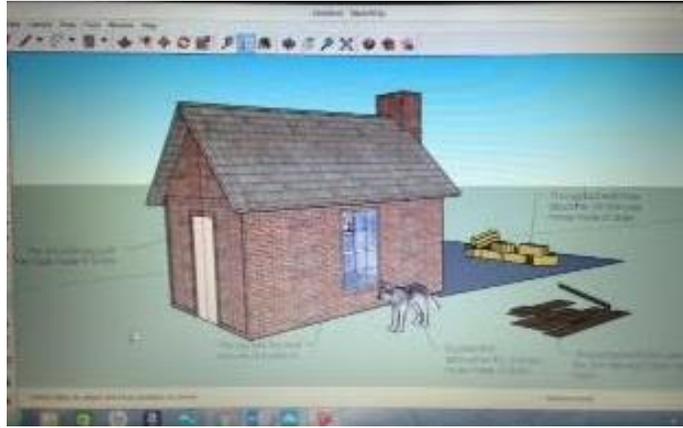


Figure 2 Three Little Pigs Final Project

SketchUp Guidelines: Share with students the following guidelines for using/creating their SketchUp creations.

- Setting has details from the text
- 2 items from the SketchUp Warehouse
- Variety of Shapes are used
- Textures/Colors are used
- Text is used to label items for justification
- Creativity is present
- Accuracy

1.5.5. EXTENSIONS

- Upload to model on Google Earth
- Share their creation with 3D warehouse
- Use it as a blueprint to bring their design into the real world.
- 3D printing-Students are able to dream, design, and deliver their 3D creations into real world objects.

1.6. RUBRIC

This rubric is for a beginner student on SketchUp and can be modified based on the teacher's needs and student level.

Category	Need Improvement 1	Getting There 2	Accomplished 3	Score
Setting Map	Very little details, quotes, or examples are listed on the setting map. 2 or more boxes are missing information.	Details, quotes, or examples are listed on the setting map but one box is missing information.	Details, quotes, or examples are listed on the setting map and all boxes contain information.	
Setting Rough Draft Drawing	Drawing is incomplete, showing little resemblance to the example from text with little or no justification.	Drawing shows some resemblance to the example from the text but only has ½ of items with justification.	Drawing is complete and shows resemblance to the example and has justification for almost all items.	
SketchUp	Setting has details from the text, items from SketchUp Warehouse, and variety of shapes but is missing texture/colors, text for justification, missing life like qualities.	Setting has details from the text, items from SketchUp Warehouse, and variety of shapes, texture/colors, text for justification and model generally looks life-like.	Setting has details from the text, items from SketchUp Warehouse, and variety of shapes, texture/colors, text for justification, model generally looks life-like.	
Creativity/Elaboration	Very little details and does not embellish ideas. Design lacks creativity.	Adds details, expands or embellishes ideas with assistance. Creativity is evident.	Expands, develops and embellishes ideas by adding details. Strong creative elements are present.	

1.7. RESOURCES

Language Arts Lesson

- *Read Write Think*: List of Novels with well-developed settings
http://www.readwritethink.org/files/resources/lesson_images/lesson107/107BookList.pdf
- *Read Write Think*: List of picture books with well-developed settings
http://www.readwritethink.org/files/resources/lesson_images/lesson107/107BookList.pdf
- *Read Write Think*: Setting Map and Explanation of Elements:
http://www.readwritethink.org/files/resources/lesson_images/lesson107/3ElementsofSetting.pdf
- Sample Templates: Sample Exit Tickets: <http://www.sampletemplates.com/business-templates/exit-ticket-template.html>

SketchUp Project

- F1 Ferrari F14-T (3D Model out of Blender) video clip:
<https://www.youtube.com/watch?v=Ot5CLbdZV4k>
- SketchUp speed drawing – Super Mario Brothers video clip:
<https://www.youtube.com/watch?v=ZrwufoIVfdI>
- Interested in a career in animation video clip:
<https://www.youtube.com/watch?v=vsfGF-irwHQ>
- What is SketchUp video Clip: <https://www.youtube.com/watch?v=a5P5R8u74H8>
- SketchUp Tutorials: <http://www.sketchup.com/learn/videos/58?playlist=58>
- Teaching from Room 6: This is the cutting up the text activity.
<http://www.teachinginroom6.com/2015/01/cutting-up-text-evidence.html>