Plateau Indian Beaded Bags

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Contents

At a Glance

Grades: 6–8
Content Standard: Visual Arts: Relate art to societal and historical context (VA.11)
Essential Understanding: History from Indian Perspectives (EU 6)
CS Concept: Algorithms and Programming: Decompose problems into parts. (CS.AP.6-8.4)
Duration: Two 50 min. class periods

1 Unit Overview

This visual arts unit is designed to help students understand the history of beaded bags and their connection to the tribes of the Columbia Plateau, and to introduce students to computational thinking. We have selected one such bag from the Fred Mitchell Collection (see Figure 1), and center class discussions around interpretations of what the scene depicts (and why). Using the historical context, students are asked to imagine what happens next in this scene, and to animate the scenario they create using Alice.[1] We also provide worksheets to gauge student understandings of algorithmic problem solving as well as American Indian beadwork pre- and post-lesson.

1.1 Anchor Text

In 2009, the Montana Historical Society presented a special exhibit entitled "Tradition, Design, Color: Plateau Indian Beaded Bags from the Fred Mitchell Collection." The accompanying brochure[2] gives historical context for the Plateau Indian beaded bags and is the central text for this lesson.

Figure 1: Beaded bag, ca. 1920. This bag appears in the Fred Mitchell collection, and the original photo by J. Cooper for the Montana Historical Society brochure.

Text Summary: This text describes the context of beaded bags created by American Indians on the Columbia River Plateau. The beads used to create these pieces were made in Europe, which the American Indians acquired through trade. In the early 1800s, *Pony beads* (large glass beads) were the first types of beads available on the Columbia Plateau. By the mid-1800s, beads became smaller and more colors were available. The particular bag that we focus on in this unit is from around 1920 (see Figure 1), when the techniques for beadwork were sophisticated and often included realistic depictions of people.

Tribe(s) in the Text: The tribes of the Columbia Plateau, which include Salish, Kootenai and Pend d'Oreille of present-day Montana and the Wasco, Wishram, Yakama, Umatilla, Walla Walla, Cayuse, Nez Perce, Colville, and Spokane, west of Montana.

Place and Time: Columbia Plateau, early 1900s.

1.2 Resources and Materials Needed

1. Resources available on Storytelling lessons webpage[3]:
   (a) This lesson plan, and a one-page summary of the lesson.
   (b) A pre-built world (Beaded-Bag-Starter.a2w) that depicts the story with a brief animation. This world can be saved to the computer and then opened from within Alice 2 by selecting the 'Open

[1] This lesson plan uses Alice 2, a drag and drop programming environment freely available from Carnegie Mellon University.
[2] The brochure can be found here: `http://mhs.mt.gov/Portals/11/education/ABeautifulTradition/tradition%20design%20color%20brochure.pdf`
[3] `http://www.montana.edu/storytelling/lessons.html`)

a World' tab from the welcome screen and navigating to where the world was saved. A worksheet describing the process of opening a saved Alice 2 is available on the Storytelling lessons webpage[4].

(c) A link to the Fred Mitchell Collection Brochure, as well as a two-page black & white summary of the brochure. This handout should be distributed to students to read and complete Worksheet 1, prior to Class Period One.

(d) Worksheet 1 to give prior to Class Period One, Worksheet 2 to give after Class Period Two, and Worksheet 3 to give following Class Period two.

(e) One copy of the Beaded bag image for every two to three students to reference while animating (page 8 of the Beaded bag handout). Alternatively, the handout can be projected for the class to view.

2. If a projector is available, projecting the artwork would be helpful for the initial discussion. If not, distributing copies of the Fred Mitchell Brochure will be sufficient.

3. Computers will need to have Alice 2 installed; see the Alice 2 download page[5] for software download and instructions. Be sure to install Alice 2, not Alice 3. Note: Alice 2 does not work on macOS High Sierra (version 10.13) currently.

1.3 Related Lessons

A Beautiful Tradition: Adaptation and Ingenuity in a Century of Plateau Women's Art[6] (Art, Grades 4-5) and associated resources[7] from the Montana Historical Society.

2 Learning Objectives & Instructional Outcomes

This module is part of the collection of lesson plans developed by Storytelling, a cross-disciplinary NSF-funded project at Montana State University (MSU) that develops lesson plans at the middle school level that (1) meet Montana content standards, (2) address the IEFA Essential Understandings, and (3) introduce students to topics in computing. We provide learning objectives with assessments for each of these areas:

(1) Describe the evolution of the beadwork of Plateau tribes across different time periods. (Visual Arts content standards VA.11).

(2) Describe differences between beaded artwork created for American Indian people versus for English settlers. (Essential Understanding 6).

(3) Design the steps needed to animate a story. For each step needed, break it up into parts and implement (code) the solution (CS.AP.6-8.4).

See Appendix A for a complete list of learning objectives in all three areas: content standards, IEFA Essential Understandings, and CS.

3 Methods and Instructional Strategies

This unit is comprised of two lessons. The following descriptions provide specific instructions for the execution of each lesson. We provide a complete instructional unit, but you as the teacher may choose to use only parts of it or adapt it to your classroom needs.

By reading about the tradition, design, and color of beaded bags, students will learn about the history of beaded bags of Columbia Plateau tribes. Students will then use context clues and their imagination to animate the potential story that unfolded, immediately following the given scene depicted on the beaded bag.

[4] http://www.montana.edu/storytelling/lessons.html)
[5] https://www.alice.org/get-alice/alice-2/
[6] http://mhs.mt.gov/Portals/11/education/ABeautifulTradition/4THand5TH/LP_4-5_FINAL2017.pdf
[7] http://mhs.mt.gov/education/ABeautifulTradition/4THand5TH

3.1 Preparation

1. Set-up a projector with the artwork displayed, or print out the artwork so that each student has a copy of it.

2. Download Alice 2 onto all computers, and open the program. Ideally, you should have one computer for every two to three students.

3. Download the starter world (Beaded-Bag-Starter.a2w) available from the Storytelling lessons webpage[8] and pre-load it onto each computer. After opening Alice 2, select the tab 'Open a World' from the Welcome screen, and navigate to where you saved the .a2w file. For assistance, a worksheet describing the process of opening a saved Alice 2 is available on the Storytelling lessons webpage[9].

4. Review technical ideas and terms used in the lesson, and defined in Appendix C.

3.2 Class Period One

In this lesson, students will learn about the beaded bags created by members of tribes of the Columbia Plateau.

1. To be completed before Class Period One:
   (a) Read the story of the Fred Mitchell collection from the handout.
   (b) Complete Worksheet 1.
   (c) (Optional) Have students bring in something beaded from home.

2. (10 *minutes*). **Summarize and Review Reading**: First summarize the reading for the students (see the summary above, for example), or ask students to summarize. Then, get a classroom conversation started with a selection of the following questions.
   (a) How long do you think it takes to make a piece of beadwork? How long do you think it took someone to make the Beaded bag?
   ►**Answer Guidance**: It depends on the size of the artwork and its complexity, but also depends on the skill level of the person crafting the piece of art! Small items done by a skilled person might only take an hour or two, but larger items can take weeks or months to make.
   (b) What tribes are known for their beadwork in Montana?
   ►**Answer Guidance**: The reading mentions the following tribes: Salish, Kootenai and Pend d'Oreille. However, note that other tribes are known for their beadwork as well.
   ★**Correcting Common Misconceptions**: *Both men and women made beadwork items.* While women were the ones who predominately made the beadwork in the tribes of the Columbia plateau, men could also participate in this art form.
   ★**Correcting Common Misconceptions**: *Beadwork is not an important art in every tribe.* Some tribes did not create beadwork. In the early 20th century, beadwork was predominantly found in the plains. Weaving and quillwork were also important.
   (c) Where is the Columbia Plateau?
   ►**Answer Guidance**: The Plateau extends from western Montana and Idaho into Washington and Oregon.
   ★**Correcting Common Misconceptions**: *American Indian people do not all live on reservations.* American Indian people are part of society.
   ★**Correcting Common Misconceptions**: *Not all American Indian people are the same.* Tribes differ culturally, physically and linguistically.

[8] `http://www.montana.edu/storytelling/lessons.html`)
[9] `http://www.montana.edu/storytelling/lessons.html`)

(d) How has beadwork changed through time?

►**Answer Guidance**: Pony beads early and seed beads later; more detail with time; from regional flowers to incorporating the eagle and the flag and depictions of people; from creating for self/family/community to designing to sell.

★**Correcting Common Misconceptions**: *Native culture does not only exist in history.* Beadwork is an artistic expression that occurs today.

(e) How did the economy influence changes in beadwork?

►**Answer Guidance**: As non-Indians began to collect the bags non-Indian imagery became more marketable. For example the American flag is included on many bags.

★**Correcting Common Misconceptions**: *Beadwork is not only made to sell to people (regalia, ceremony, personal items).* Beadwork is artwork.

(f) Have you seen any modern beadwork? What do you believe it may look like?

(g) What beadwork have you seen in person? Who made it? Who uses it or where is it displayed? Was it made for art or for function?

3. (*5 minutes*). **Discussion on Beaded Bag Scene**: The following questions should lead a class discussion about the beaded bag on page 8 of the reading, which has two people standing in front of a tipi; also shown in Figure 1. Keep the discussion centered on what is seen directly in the image. Suggested prompts:

(a) When was the bag created?

►**Answer Guidance**: Early 1900s, because the work uses small beads and depicts people.

(b) What can you tell me about the landscape?

►**Answer Guidance**: It is flat, indicating either a plateau or the plains.

(c) What is the person on the horse holding?

►**Answer Guidance**: Perhaps a spear used for hunting and war

(d) Who do you believe this man is? Why?

★**Correcting Common Misconceptions**: *Natives do not always ware a headdress.*

►**Answer Guidance**: The headdress worn by the man on the horse is also called a warbonnet, symbolizing he is an important member of the community as warbonnets are earned.

(e) Who is the person on the right? What is she wearing? (

►**Answer Guidance**: She is wearing a cedar hat and a long dress - likely from the Umatilla tribe

(f) What is she holding?

►**Answer Guidance**: We cannot be certain, but guesses could be: A gift? A charm? Berries?

4. (*10 minutes*). **Examine Alice world**: On the computer connected to the projector, open the starter world in Alice (see Figure 2).

(a) Go over the different parts of the Alice environment that are labeled in Figure 3; in particular, Objects, Object Methods, and World Preview.

(b) Push play and watch the short animation.

(c) Inspect the code window for `world.myFirstMethod` in the programming environment (lower right corner).

(d) Discuss as a class how the computer interprets the code in `world.myFirstMethod`. The computer interprets this code like a set of instructions for the animation they just watched.

(e) Close out of the animation window.

(f) Select the man from the list of objects in the objects window (upper left corner).

(g) Demonstrate how to add an action to the animation, by selecting the method `man.say` from the man's details section in the object methods (lower left corner).

(h) Add this method to the animation by dragging the method to the code for `world.myfirstmethod`. A prompt will open asking what the man is to say. As a class, decide what the man is to say.

(i) Push play again and observe the changes in the animation.

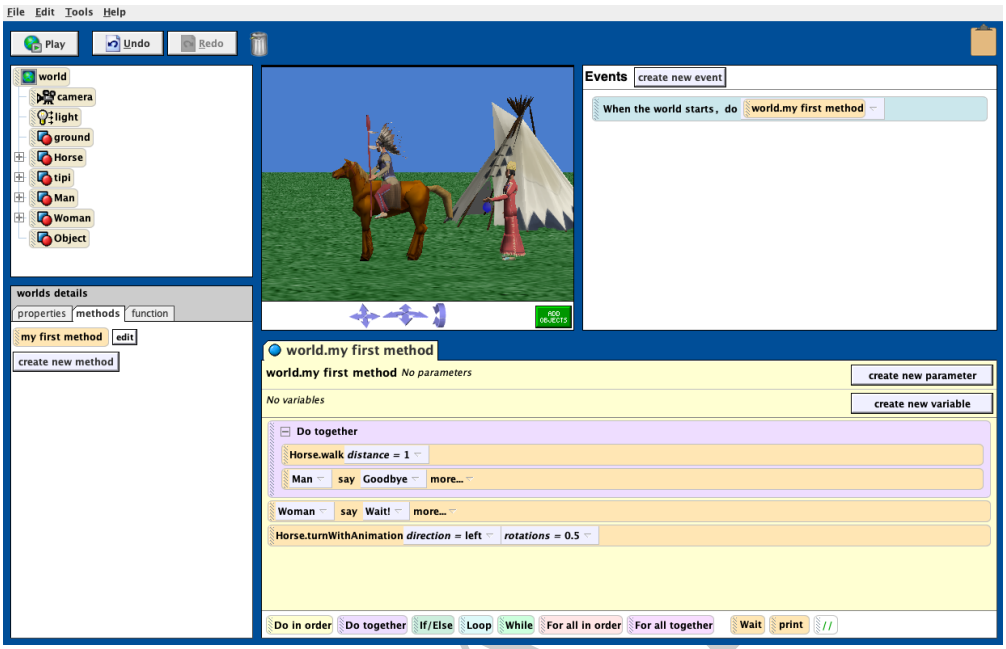

Figure 2: Starter world for the Plateau Indian Beaded Bags lesson. The world preview shows the scene from the beaded bag appearing in the Fred Mitchell collection, shown in Figure 1.

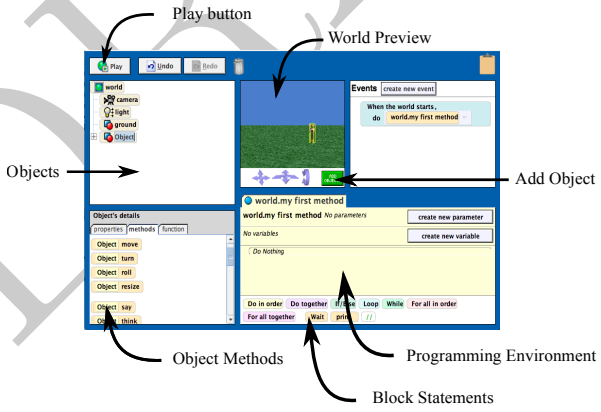

Figure 3: Labeled overview of the Alice software. Specifically, for this lesson, the `Do together` statement is emphasized with an arrow in the block statements section and the methods to make characters perform actions are circled in the bottom left. Methods and block statements can be dragged into the programming environment and tested by pressing the play button in the top left corner of the software.

5. (*5 minutes*). **Think**: Now have the students explore what is not directly shown in the beadwork of the bag. Have each student journal, using the last page of Worksheet 1, about the scene in the beadwork. Perhaps lead off with prompting questions:

   (a) What do you think the story is behind the scene depicted on the bag?

   (b) What part of the story is being depicted?

(c) Why is the man on a horse? Is he leaving or arriving? To/from where?

(d) Are the two people in the scene strangers or acquaintances?

(e) Did she give or receive the gift (if the blue item is interpreted as a gift)?

6. (*10 minutes*). **Pair**: Have the students break into pairs (or triads) and describe their ideas to each other. In the next lesson, they must agree on a version of the story to animate (likely, this will be a combination of the students' ideas).

7. (*8 minutes*). **Share**: Have each group of students share one idea they have as to what is happening in this scene. Ask *why* or *what clues in the scene did you use* to help elicit more details from the students.

8. (1 *min*). **Conclude**: Remind students that this process they engaged in with their partners is the development phase of creating an animation. This phase is *always* part of the process of creating products (e.g. software, animation)

9. (1 *min*). **Wrap-up**: Pass out Worksheet 2 to the class. This can be done either at the end of Class One, as homework before Class 2, or at the start of Class 2.

3.3 Class Period Two

In this lesson, the students will animate the sequence of events that they imagined to lead up to the scene depicted on the beaded bag.

1. (*10 minutes*). **Group Discussion**: Recall what we know about the scene in the bead bag. Remind students that the beads came from trade and other factual details discussed the day before. Highlights may include:

   (a) Stories are a part of theory and are a legitimate sources of data.

   (b) Women in the tribes of the Columbia plateau made beaded bags.

   (c) The size of the bead can help date the beadwork, with pony (large) beads being from the early 1800s, and smaller beads introduces in mid-1800s.

   (d) Recall the scene in the beadbag that we will animate today.

2. (*10 minutes*). **Pair (continued from previous class)**: The pair will sit at a computer with the starter world pre-loaded. They will push the 'Play' button (top left) to see the initial animation, then inspect the code in `world.myFirstMethod` to see if they can follow along in the code what the animation does.

   Students will analyze the code provided that animates an event leading up to the depicted scene. Students should try to understand what role each piece of the code plays in animating the world. If time allows, they will add or remove objects to the scene as needed, as well as move or orient objects around to be in the correct 'start' position for the story they wish to animate. In the next segment, they will continue creating their animations!

3. (*20 minutes*). **Animate**: The pairs will have the chance to animate their own version of the events that take place after the depicted scene in Figure 1. Each object in the scene (i.e., character) has a set of pre-defined methods that students can use, which are found in the object methods block (lower left corner).

   Distribute copies of the beaded bag coding worksheet. Students should complete the worksheet while animating.

   While observing the students animate, select two worlds created by student groups that tell two distinct interpretations of what happened.

4. (*10 minutes*). **Share**: Ask the students to share their animation, the story they are telling, what methods they used to accomplish their animation (this can be done by projecting to the classroom, having all students huddle around, or just verbal descriptions). Ask non-presenting students to describe what the differences were between the two stories.

5. (1 *min*). **Wrap-up**: Distribute out Worksheet 3 to the class, to be completed as homework.

4 Assessment (Formative and Summative)

The following are suggested formative and summative assessments for monitoring student understanding. These can be assigned as homework or test questions, or can be used as discussion questions for small groups. We provide worksheets on our website that can be printed out and handed to students, and provide a general list of assessment techniques here:

4.1 Pre-Assessment (Worksheet 1)

In this worksheet, students' understanding of the anchor text, read before class period one, will be assessed. Students will respond to questions about their personal knowledge of beaded art, American Indian tribes from the Columbia River Plateau, the history of beaded bags, and their personal experiences with computer animation.

- To emphasize Anchor Standard #8, have students discuss their personal experiences with and interpretations of beaded art.
- To emphasize Anchor Standard #11, have students discuss the societal, cultural, and historical significance of beaded art.
- To emphasize Anchor Standard #2, have students disucss how the images of the beaded bags impacted their understanding of the anchor text.

4.2 Class Period One Assessment (Worksheet 2)

In this worksheet, students' understanding of class period one will be assessed. Students will reflect on their impressions of beaded bag artwork, make a connection between history and storytelling, describe the story that they plan on animating in Alice, and plan the sequence of actions that will take place in their animation.

- To emphasize Anchor Standard #8, have students write down how their perception of the artwork has changed from when they first saw it.
- To emphasize Anchor Standard #11, have students write down the societal, cultural, and historical context that their story takes place in.
- To emphasize Essential Understanding 6, after students share their ideas on what is happening in the scene, students could be asked to explain how storytelling relates to history.
- To emphasize CSTA CT.L2-06, have students describe the sequence of steps that must be followed to animate their ending to the beaded bag story.

4.3 Class Period Two Assessment (Worksheet 3)

In this worksheet, students' understanding of class period two will be assessed. Students will reflect on their experience with animation, make a connection between coding and other contexts, and reflect on their knowledge of different coding methods.

- To emphasize CSTA CT.L2-01, have students describe or write down the steps their group used to animate their story. What parts were simple to animate? Which parts were difficult to animate?
  - A classroom conversation could be had about the class' experiences in animating. What steps did they use the most (design, implement, test, evaluate)? Is that what they expected to be the case?
- Following the presentation of student worlds (stories in Alice) we suggest starting a discussion with some of the following questions:
  - How does a computer interpret a set of instructions to create an animation?

- How can someone formulate an "algorithm" that a computer can follow (remind the students of the video shown at the beginning)?
- What coding method(s) have you learned from other group's presentations?
- What coding method(s) do you wish you would have tried when telling your story in Alice?

5 About Storytelling

The Storytelling project develops middle school curriculum materials that incorporate computer science and computational thinking into lesson plans, in addition to the Montana content standards and IEFA Essential Understandings. The team uses Alice 2, a drag-and-drop programming environment, to create interactive activities for the students. Using Alice, students can animate their own stories in the lesson plans being developed. This process ties into the American Indian tradition of using storytelling to share their heritage. This research is conducted by a group of researchers at Montana State Universtiy, under grant NSF DRL 1657553 For more information, please email us at `storytelling@montana.edu` or visit our website `www.montana.edu/storytelling`. We welcome any suggestions for improvements and/or suggestions for future lesson plans to develop. This particular lesson plan was developed by Barbara do Amaral, Brittany Terese Fasy, Barbara Komlos, Samuel Micka, Kirby Overman, and Allison Theobold.

Disclaimer: Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

This lesson plan is currently a work in progress, and we would appreciate any comments and feedback that you may have. Please email `storytelling@montana.edu` with feedback.

A Standards in Three Areas

This appendix contains the full text of the content standards, IEFA Essential Understandings, and CS content standards that apply to this lesson plan. We separate out the CS content standards from the other content standards in order to emphasize the CS content in the lessons.

A.1 Content Standards

We follow the content standards provided by the Office of Public Instruction (OPI), and available here: `https://opi.mt.gov/Educators/Teaching-Learning/K-12-Content-Standards-Revision`.

- Primary:
  - **Visual Arts**:

VA.11 Relate artistic ideas and works with societal, cultural and historical context to deepen understanding, including artistic ideas and works by American Indians. Enduring Understanding: People develop ideas and understandings of society, culture, and history through their interactions with and analysis of art. (Grades 6th–8th)

VA.8 Construct meaningful interpretations of artistic work. Enduring Understanding: People gain insights into meanings of artworks by engaging in the process of art critique. (Grades 6th–8th)

  - **Speaking and Listening: Comprehension and Collaboration**

SL.6.2 Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

SL.7.2 Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

SL.8.2 Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.

- Secondary:
  - **Speaking and Listening: Comprehension and Collaboration**

SL.6.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 7 topics, texts, and issues, building on others ideas and expressing their own clearly.

SL.8.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 8 topics, texts, and issues, building on others ideas and expressing their own clearly.

  - **Speaking and Listening: Presentation of Knowledge and Ideas**

SL.6.5 Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

  - **Reading Standards for Literature: Key Ideas and Details**

RL.6.3 Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.

RL.7.3 Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).

RL.8.3 Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.

A.2 Essential Understandings

- **Essential Understanding History from Indian Perspectives (EU 6):** History is a story most often related through the subjective experience of the teller. With the inclusion of more and varied voices, histories are being rediscovered and revised. History told from an Indian perspective frequently conflicts with the stories mainstream historians tell.

A.3 Computational Concepts

We use the Montana Content standards[10] for sixth through eigth grades, which are aligned with the CSTA standards.[11]This lesson plan focuses on the *Algorithms & Programming* content standards. Specifically, each student will:

1. **(CS.AP.6-8.4).** *Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.*
   - Full description from **CSTA 2-AP-13**: *Students should break down problems into subproblems, which can be further broken down to smaller parts. Decomposition facilitates aspects of program development by allowing students to focus on one piece at a time (e.g., getting input from the user,*

[10]MT content standards are available here: `http://opi.mt.gov/Educators/Teaching-Learning/K-12-Standards-Revision/Computer-Science`

[11]CSTA standards are available here: `https://www.csteachers.org/page/standards`.

processing the data, and displaying the result to the user). Decomposition also enables different students to work on different parts at the same time. For example, animations can be decomposed into multiple scenes, which can be developed independently.

- Practice(s): Recognizing and Defining Computational Problems

2. **(CS.AP.6-8.3).** *Develop programs that combine control structures, including nested loops and compound conditionals.*

   - Full description from **CSTA 2-AP-12**: *(Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.)Control structures can be combined in many ways. Nested loops are loops placed within loops. Compound conditionals combine two or more conditions in a logical relationship (e.g., using AND, OR, and NOT), and nesting conditionals within one another allows the result of one conditional to lead to another. For example, when programming an interactive story, students could use a compound conditional within a loop to unlock a door only if a character has a key AND is touching the door.*
   - Practice(s): Creating Computational Artifacts

3. **(CS.AP.6-8.6).** *Seek and incorporate feedback from team members and users to refine a solution that meets user needs.*

   - Full description from **CSTA 2-AP-15**: *Development teams that employ user-centered design create solutions (e.g., programs and devices) that can have a large societal impact, such as an app that allows people with speech difficulties to translate hard-to-understand pronunciation into understandable language. Students should begin to seek diverse perspectives throughout the design process to improve their computational artifacts. Considerations of the end-user may include usability, accessibility, age-appropriate content, respectful language, user perspective, pronoun use, color contrast, and ease of use.*
   - Practice(s): Collaborating Around Computing , and Fostering an Inclusive Computing Culture

4. **(CS.AP.6-8.1).** *Use algorithms to address complex problems.*

   - Full description from **CSTA 2-AP-10**: *(Use flowcharts and/or pseudocode to address complex problems as algorithms). Complex problems are problems that would be difficult for students to solve computationally. Students should use pseudocode and/or flowcharts to organize and sequence an algorithm that addresses a complex problem, even though they may not actually program the solutions. For example, students might express an algorithm that produces a recommendation for purchasing sneakers based on inputs such as size, colors, brand, comfort, and cost. Testing the algorithm with a wide range of inputs and users allows students to refine their recommendation algorithm and to identify other inputs they may have initially excluded.*
   - Practice(s): Developing and Using Extraction

B Understanding by Design Framework

Essential questions, key concepts, key knowledge, and key skills have been created to adhere to the recommendations from *Understanding by Design* (Wiggins & McTighe, 2005). These essential questions involve questions that recur throughout our lives, questions that help students to inquire and make sense of important but complicated ideas and knowledge, and questions that engage a diverse set of learners.

B.1 Essential Questions

1. Why do people interpret the same work of art in different ways?
2. How can we use art to better understand society, culture, and history?
3. What role does storytelling play in the construction of history?

4. How can history differ based on who the "storyteller" is?
5. How does traditional storytelling differ from modern storytelling?
6. What role do computers play in the future of storytelling?

B.2 Key Concepts

By the end of this lesson, a student will understand:

1. There are different interpretations of the same work of art.
2. The impacts of time and place on the tools used by people in the construction of art, and how this changes cultural expression.
3. The importance of the order of steps in an algorithmic workflow.
4. The differences between what is possible in reality, in our imaginations, and on computers (as our current technology allows).

B.3 Key Knowledge

By the end of this lesson, a student will know:

1. The location of the Plateau tribes.
2. The evolution of the beadwork of Plateau tribes across different time periods.
3. Differences between beaded artwork created for American Indian people versus for English settlers.
4. How art is useful for documenting culture and history.
5. How Alice interprets a sequence of instructions to animate a story.
6. The importance of sequential actions in animating a story.

B.4 Key Skills

By the end of this lesson, a student will be able to:

1. Animate a story in Alice, transforming ideas into an animation by building characters and creating a sequence of actions the characters perform.
2. Engage in algorithmic problem solving: design, implement, test, and evaluate.
3. Engage effectively in collaborative discussions, building on others' ideas and clearly expressing their own.
4. Use animation to communicate a solution to the problem at hand.

C Glossary

This glossary provides descriptions, and definitions for terms used in this lesson. We hope the descriptions included in this glossary will help clarify the concepts used in the coding activity portion of the lesson plan.

Algorithm An *algorithm* is a sequence of steps to solve a problem or perform a task. Similar to changing a tire or following a recipe to bake a cake, these actions take a specific step-by-step processes. In Alice, the *algorithms* we develop help to animate the virtual world.

Code Computer *code* is how computer users enter instructions for the computer to understand the step-by-step instructions. Computer scientists use a "programming language" to write code. HTML, and C++ are examples of programming languages.

Sequential In Alice, *sequential* events (actions) occur one after the other; for example if you call the `jump` method, the object/character jumps and then it comes back to its original position; then you call the `run` method and the character runs, and it returns to its original position. *Sequential* refers to the order in which these events occur.

Parallel A *parallel* event is when two actions happen at the same time. In Alice, this *parellel* function is called a do-together block. For example, two characters walking together.

Method A *method* is a group of messages/instructions directed at an object to cause it to perform a particular action. For example, when you want an object to walk, run, or jump, these actions require a *method* that tells the object which action to take.

Object An *object* is what we see displayed or represented on the screen (a figure, a ball, a dog). This *object* is manipulated by the computer via step-by-step instructions initiated by the computer user. *Objects* will behave or act with help from methods.