**Title:** Base-Ten Artwork

**Curriculum:** Math

**Grade Level:** First Grade

**Purpose**

Students will be able to determine the value of a number that is represented in base-ten blocks, and be able to explain their thinking.

**Description**

In the past when doing this learning activity, students would begin by learning how to model a number by using base-ten blocks. Afterwards, students would create a picture using base-ten block cutouts and then determine the value of their picture, using what they know about place value. Students would then stand up around the room and share their artwork and explain it’s value to the rest of the class.

In this learning activity redesign, students will model a number using base-ten blocks using Kidspiration. The students will then create, their artwork, either using traditional paper, crayons, and cutouts or using Kidspiration. The teacher will then teach the students how to create their own Vokis. The students will create Voki’s and either attach a recording of their verbal explanation of the value of their artwork, using the microphone or a previous recording, or they will type in their explanation and the Voki will generate a computerized voice. The teacher will then publish the Vokis on youtube, and create QR codes that linkto the videos.

The artwork will be set up around the room, and students will go around and fill out a worksheet to figure out the value of the artwork of their peers. The students will then use the QR codes to self-check their work. Finally, the class will determine which art piece has the highest value.

**Objectives**

Here is a list of objectives that will be covered in different parts of the learning activity. To see which objectives correspond to each lesson, look at the activities chart below.

Common Core State Standards (CCSS):

[CCSS.MATH.CONTENT.1.NBT.B.2](http://www.corestandards.org/Math/Content/1/NBT/B/2/)  
Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

[CCSS.MATH.CONTENT.1.NBT.B.2.A](http://www.corestandards.org/Math/Content/1/NBT/B/2/a/)  
10 can be thought of as a bundle of ten ones — called a "ten."

[CCSS.MATH.CONTENT.1.NBT.B.2.B](http://www.corestandards.org/Math/Content/1/NBT/B/2/b/)  
The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

[CCSS.MATH.CONTENT.1.NBT.B.2.C](http://www.corestandards.org/Math/Content/1/NBT/B/2/c/)  
The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

[CCSS.MATH.CONTENT.1.NBT.B.3](http://www.corestandards.org/Math/Content/1/NBT/B/3/)  
Compare two two-digit numbers based on meanings of the tens and ones digits,

International Society for Technology and Education (ISTE) Standards

<http://www.iste.org/docs/pdfs/20-14_ISTE_Standards-S_PDF.pdf>

1. Creativity and innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

a. Apply existing knowledge to generate new ideas, products, or processes

b. Create original works as a means of personal or group expression

c. Use models and simulations to explore complex systems and issues

2. Communication and collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats

4. Critical thinking, problem solving, and decision making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

c. Collect and analyze data to identify solutions and/or make informed decisions

d. Use multiple processes and diverse perspectives to explore alternative solutions

5. Digital citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

c. Demonstrate personal responsibility for lifelong learning

6. Technology operations and concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

a. Understand and use technology systems

b. Select and use applications effectively and productively

d. Transfer current knowledge to learning of new technologies

**Activities**

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| --- | --- | --- |
| **Activities** | **Standards** | |
| **CCSS – Math** | **ISTE** |
| Previous Learning  Before this learning activity, students have been working on modeling numbers using base-ten block manipulatives or place value manipulatives. Students have used a variety of materials to model numbers in math centers, such as straws, digi-blocks, money, etc. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C | N/A |
| Day 1  Students will model numbers using base-ten blocks on Kidspiration. The students will also model two numbers side by side to compare two-digit numbers using base-ten blocks to determine which has the greater value. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C  1.NBT.B.3 | 6.a |
| Day 2  The teacher shows students that base-ten blocks can be compiled together to create a picture. The teacher models a picture on Kidspiration, created using base-ten blocks. The teacher also models the same activity using paper and base-ten cutouts. The teacher will then have the students think about what they want to make a picture of, and share that idea with a partner. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C | 1.a  1.b  1.c  6.a  6.d |
| Day 3  The teacher will remind students of the activity from the previous day, and show the teacher-created model. The teacher will then ask the students, “how much is the picture worth?” The students will then, as a class, figure out how much the picture is worth by counting the base-ten blocks. After the teacher listens to student guesses, the teacher will model a think-aloud to explain the value of the picture.  “My picture is worth 197. Here is why: I have one hundred, nine tens, and seven ones. That is how I know my picture is worth 197.”  Afterwards, students will go back to their seats and begin creating their base-ten block artwork. Students making the artwork on the computer can go to the computers in the classroom. The teacher will walk around and lend support where needed. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C | 1.a  1.b  6.a  6.b |
| Day 4  The teacher will remind students that they are working on their base-ten artwork. The teacher will pull up the model from the previous day. Students will continue making and completing their base-ten block artwork. After each students completes his or her artwork, he or she will explain it to a partner, and they will check each other’s answers. If there is a dispute, the teacher will guide students toward the correct answer. The teacher will walk around and lend support where needed. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C | 1.a  1.b  6.a  6.b |
| Day 5  The teacher will introduce the class to Voki, and explain that it allows students to create their own avatars. The teacher will tell students this is what they will use to explain the base-ten artwork to the rest of the class. The teacher will model the creation of a Voki. The teacher will then allow students to experiment with Voki, creating a character and changing its features, and publishing it. | N/A | 1.a  1.b  5.b  5.c  6.a  6.b  6.d |
| Day 6  The teacher will model creating a Voki including the verbal explanation of the base-ten artwork. The teacher will model how to use the microphone, how to upload an audio file, and how to use the text-to-speech feature. Students will then take turns (based on the number of computer available) creating their Vokis and adding in the verbal explanations. The teacher will walk around and lend support where needed. For students who want to pre-record their verbal explanations, the teacher will assist in preparing those audio files. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C | 1.a  1.b  2.b  5.b  5.c  6.a  6.b  6.d |
| BEFORE LESSON 7  Voki files, once published, can be accessed from any web browser that allows for flash. Most smart phone and tablet web browsers do not support Flash. Therefore, to make the completed Vokis accessible to smart phone and tablets, the videos need to be converted to a standard video file. Once students have completed their Vokis, the teacher will screencast the Vokis and save them as video files to upload them onto YouTube. Once there, the teacher will generate QR codes linking to the specific YouTube Voki videos. The YouTube videos should be uploaded as Unlisted, so that they cannot be located unless someone has a link to the video itself. The teacher will then attach a copy of the QR code to the matching picture to use the following day.  For more information on this step, please see the Screencast, located on the website, and the information on generating a QR code. | | |
| Day 7  The teacher will display the artwork created by each student around the room. The teacher will point out that there is a QR code attached to each picture. The teacher will show students the base ten artwork gallery worksheet, and explain that students in groups will go around to the artwork and work together to determine the value of each picture. The group will then self-check their work by scanning the QR code to access the videos with the explanation. Before students begin, the teacher will model how to fill out the worksheet and how to scan a QR code.  Group sizes will be determined based on the number of devices available (in my class, we used six groups) The teacher will walk around during the activity and lend support when needed. At the closing of the activity, the teacher will ask the students which artwork had the greatest value based on the total base-ten blocks, and ask students to explain their thinking. | 1.NBT.B.2.A  1.NBT.B.2.B  1.NBT.B.2.C  1.NBT.B.3 | 2.b  4.c  4.d  5.b  5.c  6.a  6.b |
| BONUS:  This project can also be done on a larger scale, by working with other classes, and having each class view the artwork prepared by another class. | | |

**Assessment**

Student Self-Evaluation Checklist – see attached

Base-Ten Art Gallery Rubric – see attached

Base-Ten Art Gallery Worksheet – see attached

Teacher will be monitoring throughout the process and reviewing students artwork and checklists to assess student understanding, and will modify instruction accordingly.