



Math + Arts | Jack & the Zero Clan

In this lesson, students will create and solve a word problem related to adding and subtracting within 1,000, develop a script for a short scene using dialect, and perform it using the elements of performance, specifically acting, speaking, and nonverbal expression.

Lesson Summary

There are three options for this lesson, depending on class needs and time available:

1. Frame, Focus, and Reflection (view and discuss): students will watch storytellers tell a story to a group of students and discuss how the tellers used performance elements to indicate imaginary props.
2. Short hands-on activity: students will review four digit numbers and place value.
3. Project : students will create and solve a word problem related to adding and subtracting within 1,000, develop a script for a short scene using dialect, and perform it using the elements of performance, specifically acting, speaking, and nonverbal expression.

Time Allotment

1. Frame, Focus, and Reflection (view and discuss): one class period
2. Short hands-on activity: 1 class period
3. Project: 5 class periods

Learning Objectives

Math

I can identify the places of numbers and their values.

I can create and solve word problems involving place value.

Arts and Humanities

Frame, Focus, and Reflection (view and discuss): I can identify how a story teller uses body movement to indicate imaginary props.

Short hands-on activity: I can collaborate with my peers to act out concepts related to place value.

Project: I can collaborate with my peers to create and perform a new scene for an existing folk tale.

Prep for Teachers

Elements of drama fall into three categories:

- + Literary elements – script, plot structures (beginning, middle, end), and language (word choice/style used to create character, dialect)
- + Technical elements – scenery (set), sound, and props
- + Performance elements – acting (character), speaking (vocal expression, dialect), and nonverbal expression (facial expression, body movement)

Traditional storytellers make minimal use of technical elements and focus on literary elements and performance elements.

Supplies

Paper

Pencils

Computer with internet access

Short activity

Card stock with numbers 0-9 written on multiple pages

Place Value Worksheet

Media Resources

[Jack and the Magic Mill](#) from KET

Introductory Activity

Students should have some knowledge of addition, subtraction, and place value (up to 1000). Make sure that they know where Appalachia is located and that they realize that Appalachia has a distinctive culture including many folktales.

Learning Activities

Frame, Focus, and Reflection

Tell the students they are about to watch a tandem team (more than one storyteller) tell a Jack Tale. Ask how many remember the story “Jack and the Beanstalk.” Explain that Jack Tales originated in the British Isles and came to America with the early settlers. In the Appalachian Mountains, the stories blended with Native American, African, and other European stories to become Appalachian stories.

Tell them they are going to watch a tandem team tell a folk tale, “Jack and the Magic Mill.” Point out that traditional storytellers do not use technical elements of theater like props or

scenery to tell their stories. Instead they rely on using the performance elements of acting, speaking, and nonverbal expression. A storyteller uses his or her voice, body movement, and facial expression to help listeners “see” the scenery and props in their imaginations. Ask students to notice if the tellers use standard or nonstandard English.

After viewing the story, discuss how the storytellers used body movement and facial expressions. Ask students to mimic the body movements the tellers used to indicate props like the piece of meat, the pizzas, and the sack of Spanish gold doubloons.

Tell them that the tellers were using Appalachian dialect to tell a traditional Appalachian story. Ask students to identify some words or phrases that were not standard English. Ask them if they noticed any elements of the story that related to the origin of the stories in the British Isles (the king, princess, and castle).

Tell students that a long time ago, gold coins were used as currency. One such coin was the gold doubloon (sometimes incorrectly spelled “dubloon”). These coins are mentioned in many old tales, especially stories about pirates.

Short Activity

Tell students that before they get started on their new parts to the story “Jack and the Magic Mill,” they will do a quick activity to help reinforce what they already know about place value.

Review with students place value up to thousands. Write the number 7,543. Tell students to think about the number (no shouting out the answer) that is in the hundreds place. Give a little wait time and signal students to answer (5). Continue with ones, tens, and thousands.

Next, walk students through writing the number in expanded form ($7000+500+40+3$).

Next, write it in word form (seven thousand five hundred forty-three)

After that, hand out card stock numbers and the Place Value Worksheet.

Now, randomly pick four students to come to the front of the class with their card stock numbers. Tell students to write the number (how the students are standing) in the box labeled group 1.

Next, have students come up with the biggest number possible from the card stock numbers. (As they do this, the students standing will organize themselves into the biggest number possible)

Then, have students come up with the smallest number possible.

Continue this activity so that every student has a chance to participate.

Project

Each group will create a new scene for the story “Jack and the Magic Mill.” Based on the original story, Jack received 10,000 doubloons for his magic mill. The new scenes will be

based on Jack counting and sharing his doubloons. New characters, the Zero Clan, will be developed, as well as a new plot based on the Zero Clan adding zeros to the counted doubloons and causing havoc among Jack and his friends.

Day One: Introduce the project and divide the class into teams. Explain that students will receive two scores. One will be based on solving the math problems. The second will be based on their efforts to be effective storyteller/actors.

Pass out or project the Storytelling Scoring Guide. Explain that every member of the team is expected to actively participate in acting out the scene that they create. Go over the scoring guide and demonstrate what is meant by “nervous behavior” (slouching against the wall, fiddling, etc.).

Tell them their first step will be to determine the characters that will be in the scene and who will play each role. They should have one person playing Jack, and the others will be Jack’s friends or family members and the members of the Zero Clan. Example: Jack, his brothers Tom and Will, Pappy Zero, and the twin Zero sons. The members of the Zero Clan all have the magic ability to add zeros to any number or take zeros away from any number. And they all love to play tricks! Pappy Zero tries to make the Zero children behave, but they keep right on playing tricks, especially the Zero twins.

Project the Character Chart and lead students in filling in information about Jack. Then, give each team as many character charts as they need to develop the characters that will be in their scenes. They should complete the character charts by the end of the class period.

Day Two: Warm up with The Tools of a Storyteller – Body Tell groups their task for the day is to develop two word problems involving adding or subtracting doubloons. (Example: Jack had 1,000 doubloons. He bought a bicycle that cost \$108 and a kite that cost \$25. How much did he have left?) By the end of the class period, each team should have developed the word problems and the solutions. Circulate as students work to make sure their work encompasses the appropriate math and is accurate. Collect the word problems and use them to create word problems to interject into the play the students create.

Day Three: Warm up with The Tools of the Storyteller – Voice Lead a discussion about dialect. If students are familiar with the Appalachian dialect (or another dialect used in your community), they can incorporate that dialect into their stories. If not, they might discuss as a group what idioms they use in their everyday speech that are nonstandard English that they would like to incorporate into their story.

Practice physical movement and vocalizations (handout)

Day Four: Students will complete the Script Starter and practice getting into their characters using body and voice.

The task for the day is to rehearse their performances.

Day Five: Groups take turns performing their scenes. The problems will be selected by the teacher. The teacher (or peers) will score the performers using the Storytelling Scoring Guide.

Extensions

Other problems can be introduced along with other scenes. For example:

1. What amount is it?

This is a four-digit number.

There is an eight in my hundreds place.

My thousands place is five less than my hundreds place.

My ones place is one more than the thousands place.

My tens place is lower than 1.

Answer: 3, 804

2. The students may create a scene in which Jack is paying Will, Tom, and members of the Zero Clan for work they have done. Again, the Zero Clan will cause problems by adding or taking away zeros.

The chart below shows the amount of money earned.

Person	Amount
Will	\$1,026
Tom	\$ 554
Pappy Zero	\$1,050
Oldest Boy Zero	\$1,005

Who received the most money last year?

Who received the least?

How much did oldest boy Zero and Pappy Zero earn in all?

How much more did Will earn than Tom?

Pappy Zero adds two hundreds to his amount. How much does he have now? (Other amounts can be added and subtracted.)

3. In another scene, Zero Clan kids and Jack and his friends could have a “figuring contest” in which the winning group will receive a prize. Each group is given a set of problems to solve. The team to finish first wins the prize. (The prize could be a trophy that is kept for a determined number of days.) This scene could be used weekly with the trophy passing back and forth between teams all year.

Formative Assessment

What are the indicators of student progress toward or achievement of each learning target?

Math Assessment Problems

1. Observation

2. Worksheet

3. Differentiated levels of questioning

Arts and Humanities

Frame, Focus, and Reflection (view and discuss): teacher observation: Students are able to mimic movements used to indicate props.

Short hands-on activity: teacher observation: Did all students participate and put forth effort?

Project: use the Storytelling Scoring Guide (teacher or peer scoring)

Program Review

Where does this fit in? How should you document it?

This activity contributes to your school's overall efforts in art programming in several areas, depending on whether you implement just the Frame, Focus, and Reflection portion or you implement the entire project.

Document with lesson plan and samples of student-generated problems and scripts. If possible, record performances or take pictures of performances.

Curriculum and Instruction: Aligned and Rigorous Curriculum

- a) To what extent does the school ensure that the arts curriculum encompasses creating, performing, and responding and is fully aligned with the Kentucky Core Academic Standards?
- b) To what extent does the school ensure that the arts curriculum provides for the development of arts literacy in all four arts discipline and also utilizes the Common Core Standards for English/Language Arts?
- c) To what extent does the school ensure that the school's curriculum provides opportunities for integration as natural cross-curricular connections are made between the arts and other content areas?
- d) To what extent does the school ensure that the arts curriculum includes the study of representative and exemplary works of dance, music, theater and visual arts from a variety of artists, cultural traditions, and historical periods?

Curriculum and Instruction: Instructional Strategies

- a) To what extent do teachers systematically incorporate all three components of arts study: creating, performing, and responding, into the arts?
- b) To what extent do teachers provide models of exemplary artistic performances and products to enhance students' understanding of an arts discipline and to develop their performance/production skills?

c) To what extent do arts teachers provide for the development of artistic theory, skills, and techniques through the development of student performances or products that are relevant and developmentally appropriate for students?

Curriculum and Instruction: Student Performance

a) To what extent are students actively engaged in creating, performing, and responding to the arts?

b) To what extent do students, with teacher guidance, routinely use creative, evaluative, analytical, and problem solving skills in developing and/or reflecting upon their artistic performances and products?

Formative and Summative Assessment: Assessments

a) To what extent do teachers utilize formative and summative arts assessments for individual students and performing groups that are clearly aligned with the components of the Kentucky Core Academic Standards; and authentically measure a specific concept, understanding, and/or skill and lead to student growth?

b) To what extent do teachers guide students to use developmentally or grade level appropriate peer review and critique to evaluate each other's work?

Formative and Summative Assessment: Expectations for Student Learning

a) To what extent do teachers utilize exemplar/models to encourage students to demonstrate characteristics of rigorous work in the appropriate art form in most instructional lessons/units?

b) To what extent do teachers share clearly defined rubrics or scoring guides with students before creating, performing, or responding assignments or other assessments; and students have the opportunity to provide input into the scoring guide?

Formative and Summative Assessment: Assessment for Teaching

To what extent do students regularly reflect on, critique, and evaluate the artistic products and performances of others and themselves as is grade level and age appropriate?

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