Objectives: Inspired by artist, Carlos Estevez’s art exhibit and based on theorist, John Dewey’s, hands-on approach,
  • The student will engage in a creative hands-on science and engineering construction project.
  • The student will problem solve to design and build a unique three dimensional “Telephone Contraption” that represents humanity.
  • The student will write their own message in a bottle to humanity describing their unique telephone contraption sculpture.

Grades: (3-8)

Artist Background Information:
Artist Carlos Estevez’s exhibit is named Celestial Traveler, after one of his artworks showing a detailed kite representing the connection between heaven and earth. His art is his way of looking for his dreams and expressing his own spiritual and family journey through life. Estevez asks many questions about why humans exist, their power, their weakness and their mission in the universe. Estevez’s FIU Frost Art Museum exhibition contains mixed media drawings of mechanical animals and people. His art collection also contains 15 telephone sculptures built with different objects and 82 bottles with special messages and images.

Reading Connections: Read a story about humanity before visiting the FIU Frost Art Museum.


This unique gorilla’s-eye-view of the world with humor, deep emotion, and thought-provoking insights into the nature of friendship, hope, and humanity. (The 2013 Newbery Medal Book)

Question: What do you know about human nature?
**Question:** What is something special about yourself that you want other people to know?

**Museum Visit / Fieldtrip:** Take a trip to the Frost Art Museum to see the art exhibit of Carlos Estevez. Take notes about the artist’s different telephone sculptures and what the artist named them. Observe the artist's installation Bottles to Sea, which includes 82 bottles launched into the sea with written and illustrated messages for humanity.

**KWL Chart – Topic: Contraption**
- **What we know** about a contraption? – It is a piece of equipment or machinery that is unusual or strange?
- **What we want** to learn about a contraption/machine: Can a contraption/machine think?
- **What we learned?** Machines and contraptions are made by humans. Artist, Carlos Estevez, made altered telephone sculptures that are unusual and make a statement about humanity.

**Vocabulary:**
- **Sculpture:** the art of forming three dimensional solid objects that represent a thing, person, idea out of clay, marble, wood or other materials (cardboard, metal, etc.)
- **Alter:** to make different in size, style; to modify
- **Contraption:** a piece of equipment or machinery that is unusual or strange.
- **Prototype:** A first model of something, especially a machine, from which other forms are developed or copied.
- **Humanity:** human race, people, civilization
- **Human nature:** refers to the characteristics of people and include ways of thinking, feeling and acting.
- **Engineering:** The branch of science and technology concerned with the design, building, and use of engines, machines, and structures.

**Part 1 - Group Brainstorming – Engineering a design**

**Time:** 30 to 40 minutes.

- The teacher shows visual design samples of architects like Frank Lloyd Wright and logos like the Nike’s swoosh or Coke’s curve.
- The teacher will divide the class into “teams” of two to four students. The students will work together and talk with each other about what they think design is. What does the word mean to them? What do designers do?
- Inspired by the Carlos Estevez’s altered telephones, each student will work as a team to brainstorm ideas for their group telephone contraption design related to humanity.
- The student will draw a prototype design of their unusual telephone sculpture.

**Materials Pre-Planning:** Teacher will ask the students to bring in recyclable items from home to be used in building their own unique 3D “Telephone Contraption” sculpture.
Part 2 - Art Activity: “Telephone Contraption” Sculpture group construction

Time: 30 to 40 minutes.

Materials: Almost anything recyclable. (Plastic color tops, paper plates, plastic straws, toothpicks, tape, plastic sporks, buttons, Popsicle sticks, cardboard.) Scissors, tacky glue, metal fasteners, white tag board & color markers.

- **Step 1:** The student will work in groups of 2-5 students. Each group is given their materials (teacher and student collected) to complete their structure.
- **Step 2:** The student will refer to their group prototype design drawing as a guide to build a three-dimensional “Telephone Contraption”.
- **Step 3:** The student will build their group altered telephone contraptions that meets the following criteria: 1) Contraption must have a listening and talking device section. 2) Size Limit –no longer than two feet. 3) Must appear to have movable parts for dialing. 4) Telephone Contraption design must somehow represent humanity.
- **Step 4:** Students work together to complete adding any sections requiring cutting and gluing of tag board and coloring with markers.

Math Connection Options:
- Student will use a ruler to measure their sculpture, which is to not exceed two feet.
- Student will use addition to calculate: How many recyclable items were used to create their group telephone contraption sculpture? How many total recyclable pieces were used all together by the entire class?
- Student will use multiplication to estimate the lengths: \((\text{width}) \times (\text{length})\) of their telephone contraption to see which group has the highest score.

Part 3 - Writing Connection Activity: “Message in a Bottle” with picture

Time: 30 to 40 minutes.

- The student will write a descriptive paragraph in the form of a “message in a bottle” to humanity describing their unique telephone contraption sculpture and draw a related picture.
- Option: The student will write something special about themselves, which they want to share with other people (humanity) and draw a related picture.

Part 4 - Art Activity #2: Bottle Painting

Time: 30 to 40 minutes.

Materials:
• One per student – A plastic water or small soda bottle – recyclable.
• Acrylic paints
• Paint brush
• **Step 1:** The student will paint using acrylic paints and a brush their own unique bottle design.
• **Step 2:** The student will place their written paragraphs, “a message in a bottle”, with a related drawn picture inside their painted bottles for others and humanity to read.
• **Optional Step 3: Time Capsule** - The class will place all their painted bottles with a copy of their written messages with picture inside a time capsule box, which is to be buried in a designated location on the school grounds. Set a future date (5 to 10 years later) for the class to return to dig up their time capsules, bottles and messages for humanity. Read & share with each other once again.

**Closure:** The student will participate in a class group presentation to describe their telephone contraption and its functionality. Peer comments and critique are encouraged.

**Assessment - Rubric to include:** 1) Must have a listening and talking section. 2) Size Limit – no longer than two feet. 3) Must appear to have movable parts for dialing. 4) Telephone Contraption design must somehow represent humanity. 5) Descriptive paragraph 6) Participation in group collaboration design and construction. 7) Bottle design

**Theorist Connection:** In this lesson, John Dewey’s hands on approach places the student in the center of learning. Dewey’s belief with experiential learning values problem-solving as an opportunity for engaging children in mental processing and understanding. *(Engaging Young Children in Museums by Sharon E. Shaffer.)*

**NGSSS:**

**Language Arts:**
LAFS.3.RI.1.3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
LAFS.3.SL.1.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly.
LAFS.3.SL.1.1.d. Explain their own ideas and understanding in light of the discussion.
LAFS.5.SL.1.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing their own clearly.
LAFS.6.W.1.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

**Math:**
MA.3.G.3.3 Build, draw, and analyze three-dimensional shapes from several orientations in order to examine and apply congruence and symmetry.
MAFS.5.OA.1.2 Write simple expressions that record calculations with numbers
Science:
SS.3.C.2.1. Identify group and individual actions of citizens that demonstrate civility, cooperation, volunteerism, and other civic virtues.
SC.3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness.
SS.3.A.1.2. Utilize technology resources to gather information from primary and secondary sources.
SC.4.P.8.1 Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.

Visual Arts
VA.3.S.3.1 Use materials, tools, and processes to achieve an intended result in two- and/or three-dimensional artworks.
VA.4.F.1.1 Combine art media with innovative ideas and techniques to create two- and/or three-dimensional works of art.
VA.5.S.3.1 Use materials, tools, techniques, and processes to achieve expected results in two- and/or three-dimensional artworks.
VA.68.F.1.1 Use non-traditional thinking and various techniques to create two-, three-, and/or four-dimensional artworks.
VA.68.H.3.3 Create imaginative works to include background knowledge or information from other subjects.

Lesson developed by Y. Cotera 2015 and adapted sections from Cooper-Hewitt, Smithsonian Design Museum; Notable 2013 Children’s books, Newbery Medal Book, ALA American Library Association; Image from Carlos Estevez’s altered telephone sculpture collection: Micro-caller, 2013; Engaging Young Children in Museums by Sharon E. Shaffer.