project ARTiculate

Fairbanks North Star Borough School District
Art Center Art Activity Kit©

Bicycles: Art on the Move

GRADE: 5 **TIME: 2 sessions**

Developed by Jenifer Cameron

KIT INCLUDES:
- books: The Noblest Invention, Complete Bicycle Maintenance
- lesson plan
- vocabulary list
- display boards (3)
  - --bicycle
  - --timeline
  - --Einstein
- overhead transparencies (23) and narrative
- Xeroxed bicycle images
- protractor set (15)
- safety compasses (24)

MATERIALS:
- construction paper:
  - --6" x 9" gray
  - --9" x 12" white
  - --6" x 18" assorted colors for mounting artwork
- 12" x 18" manila (or white) paper
- overhead projector
- protractor (1 per 2 students)
- safety compass (1 per student)
- Xeroxed bicycle sheet
- colored pencils
- pencil
- glue stick
- black marker (thin)

LESSON DESCRIPTION:

Students learn about the history of the bicycle. They work through the artist process by drawing a bicycle from memory, by observation, using tools and then from memory again. They arrange their drawings into a collage for display.

VOCABULARY:
bicycle
invention
innovation
mechanical drawing
gesture drawing

ART ELEMENTS:
- x Line
- x Shape/Form
- ___ Color
- ___ Value
- ___ Texture
- x Space/Perspective

ART PRINCIPLES:
- ___ Pattern
- ___ Rhythm/movement
- x Proportion/Scale
- ___ Balance
- ___ Unity
- ___ Emphasis

CONTENT CONNECTIONS:
math
history

THEMES:
inventions

OBJECTIVES AND ASSESSMENT CRITERIA:
Students will:
- be introduced to the historical timeline of the invention of the bicycle.
- measure angles on a bicycle using a protractor.
- make a mechanical drawing of a bicycle using a protractor and a compass.
- use innovations to add a creative touch to the drawing.

PREPARE:

1. Read/review lesson plan and practice gesture drawing to maximize student success.
2. Collect and prepare materials.
3. Cut contruction paper:
   --6" X 9" gray
   --9" X 12" white
   --6" X 18" assorted colors

ENGAGE, EXPLORE AND CREATE:

Begin the lesson by having students draw a bicycle from memory on the gray paper with a pencil. Encourage students to draw big and not share drawings with others. Ask them to include as many parts to their bicycle as they can think of. (5 mins.) Have students put these in their desks for safekeeping.

Ask students if they know what the lesson may be about today….Bikes!

1. Begin by showing the students the overhead transparencies using the narrative, but add any comments about personal experiences throughout the presentation.

2. When finished, display bicycle poster and timeline. Then pass out:
- •large manila paper
- •Xeroxed copy of paper with bicycle images (1 per 2 students)

3. Discuss with students the idea of "gesture drawing" or "fast draw". Explain to students that gesture drawings are very quick and fast, have lots of lines and lots of energy. (This style of drawing uses the wrist, not the knuckles.) Have them do at least 5 gesture drawings on the large manila paper, using their pencils or the colored pencils. Encourage various sizes, parts of bikes, and people, if wanted. (10 mins)

Gesture drawing is loose and fast!

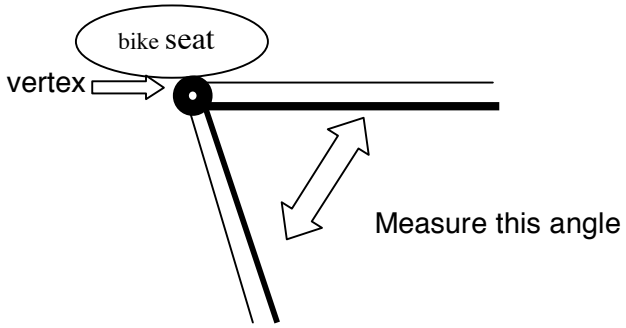
4. When students are finished with the gesture drawings, have them put drawings in their desks. Xeroxed bicycle papers should stay out on desks.

Measuring the Angles

1. Point out on the bicycle poster, the shapes they see in the frame (triangles). Explain to the students they will be learning how to measure two of the angles in the frame. Ask students, "If we look at these **closed** triangle shapes without measuring them right now, do you think there will be any obtuse angles?" (larger than 90 degrees) "Acute?" (less than 90 degrees)

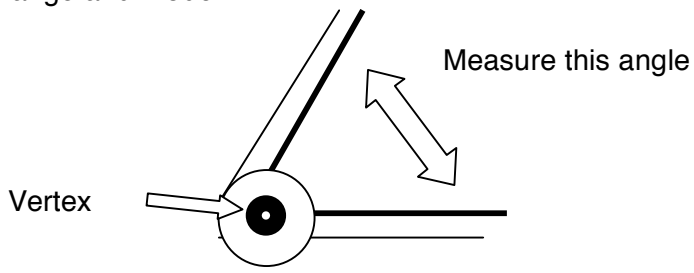
2. Set up the overhead projector again and pass out protractors (1 per 2 students)

3. Display the protractor on the overhead. Introduce (or review) the parts of the protractor. Talk about how to put the round hole (zero line) on the vertex (under bike seat), and how to read the numbers. (Use the overhead of the bicycle with the purple highlighted frame right under the seat.) This is the seat angle they will be measuring. Have students measure the seat angle, using the **bottom edge of the bike tube as the line (angle) to measure**. Some have BMX bikes, some have Road bikes.



After they have measured the angles, collect the data on the board for each bike style, listing the angles, and using a check mark to show duplicate numbers. From the data just collected, have students find:
- •minimum
- •maximum
- •range
- •mode

4. Show students the next overhead with the purple highlight on the bottom of the frame by the pedals. Demonstrate measuring again. (Vertex is the rear wheel hub). Collect data again, and repeat finding the minimum, maximum, range and mode.

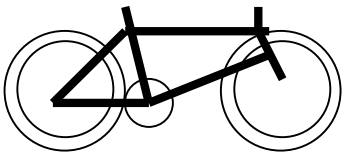


5. Discuss the differences in the data. The road bike has larger (steeper) angles, which makes it a taller bike. It will accommodate larger tires and is better suited for distance riding.

The BMX bike has narrower angles which makes it a shorter bike. It has a lower center of gravity, which makes it good for tricks and riding fast for short distances. The frame angles are different according to the use of the bike.

6. Have students put their memory drawing, gesture drawings, and Xeroxed bicycle pictures in a folder made from construction paper or scrap paper. Put name on folders and collect and keep in the classroom.

SESSION TWO: Teacher Demonstration: Safety compass (Practice first!)
Use the overhead to demonstrate how to use the safety compass. Show students how to make different sized circles. Demonstrate using the straight edge for straight lines.



Demonstrate about this far on the overhead.
Next, start to add innovations to your bicycle design. Maybe butterfly antenna for handlebars, and wings for a seat!

Encourage students to add creativity and innovation into their designs. This is a list of what has to be included in their designs. Two Wheels, frame, seat, some way to steer, and pedal power. <u>(It should be strongly suggested that students do not include weapons in their designs.)</u>

1. Have students use the back of the manila paper, (light color construction paper can be substituted) to practice using the orange “safety” compass. After they have practiced a bit, pass out the 9” x 12” white paper for the final drawing. Encourage students to use their straight edge for straight lines, and compass for circles.

2, Students will now be making a mechanical drawing of their bicycle. Getting the right distance between the wheels is a good first step. Remind students to use their tools when making straight lines and circles.

3. After students draw the wheels, they may begin to draw the rest of the bicycle using a straight edge to make the triangle frame. Encourage using some innovation to make this bike creative. Some may choose lots of innovations, some very few. Hold up student examples during lesson. They will then trace over all or part of their pencil drawings with the thin black marker. Have students use the color pencils to add color to their drawings. When students have completed their drawings, give directions on mounting them in a collage format.

CLOSE:

Mounting Artwork:

1. Bubble cut carefully around your memory drawing, 2-3 gesture drawings, and mechanical drawing.
2. Glue drawings to a large sheet of construction paper, don't let them touch.
3. Bubble cut again around your drawings, carefully following your first cuts.
4. Arrange and glue drawings onto a long strip of construction paper.
5. Sign name in lower right hand corner with a pencil.
6. Glue "Bicycles: Art on the Move" paper to the back.

Teacher administered assessment tool

DN.	OK	UP	Lesson_____ Teacher_____ Grade_____Date_____Number of Students_____
			Using the thumbs up, ok, and down technique, ask your students the following questions and record their answers. (K=knowledge, S=skills, C= creativity, A=attitude, E=engagement
			1. Can you tell the difference between a bicycle made in 1820 and a bicycle made in 1920? (K)
			2. Can you name the basic shapes that make up a bicycle? (S)
			3. Did you use a compass and straight edge in your drawing? (S)
			4. Did you add a touch of creativity to your bicycle drawing? (C)
			5. Do you think you can draw a bicycle from memory? (S)
			6. Did you actively listen and follow directions?(A)
			7. Did you do your best during this lesson?(E)

Teacher self-critique

8. My teaching of this lesson:

1 2 3 4 5 6 7 8 9 10

needed improvement was highly successful

9. What would I do differently next time?

ALIGNMENT:

Alignment of Standards:

Art A1-4, 6-7; B6, C4-5, D6-7

Science SE1, SE2, SG1, SG4

Math A M2.2, 3.21, 5.21, 5.27, 6.21 7.2.2, 9.2.3

History A, B

CREDITS:

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Bicycles: Art on the Move

Today in art we explored the history and geometry of one of the noblest **inventions**; the bicycle. We started by drawing a bicycle from memory, which is not as easy as you think! After learning about the history of the bicycle, we explored the bicycle's shape using a **gesture drawing** technique. Using a protractor and a compass, we measured the bicycle frame's angles and created a mechanical drawing of a bicycle. Students were encouraged to include **innovations** to their bicycle designs. After coloring the drawings, we created a **collage** from all our sketches. To top off our lesson, we did another memory drawing of a bicycle. We compared the drawings and now understand that with many drawn objects, artists need to research and study the object before they begin their drawing…especially with bicycles!

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