

Venn and the Art of Categorical Data

Facilitator's Guide

Materials:

- Colored Pencils
- Printouts of Paintings
- Large Venn diagram circles (or string to make circles or large poster paper to draw circles)

Preparation:

- Print and cut Paintings

This activity adapted from an article in the March 2017 issue of "Teaching Children Mathematics"
<http://www.nctm.org/Publications/Teaching-Children-Mathematics/2017/Vol23/Issue7/When-Venn-Diagrams-Intersect-Art--Math/>

ENGAGE!

Tell students that they are going to interview a classmate to find things that they have in common and things that are different about them.

Show a "Putting Our Heads Together" Venn diagram and briefly discuss how the heads on the paper are positioned to show things that the two heads have in common as well as things that are unique to each head.

EXPLORE!

Put students in pairs.

Give them time to talk to each other and find things that they have in common as well as things that are unique to them individually.

If necessary, you can give students a list of questions to answer together, or you can prompt students by giving them general topics to get started:

- Family members
- Pets
- Sports
- Hobbies
- TV shows

Students should make notes in the Venn diagram to show what they have in common as well as what is unique to each person. Then, they should color the part of the picture that represents them to add hair and facial features.

EXPLAIN!

Present “Putting Our Heads Together” diagrams to the rest of the class. This can be done by having pairs present their own diagrams or by having pairs trade and then present another group’s diagram to the class.

ELABORATE!

Put students in small groups. Give each group a set of Famous Paintings cards. Ask them to make observations about the paintings on the cards.

- What are some similarities that they can find among the paintings?
- What are some differences?

Tell students that the paintings on the cards fall into three main categories in the world of art. Briefly discuss each of the following, and display names/characteristics for future reference:

- LANDSCAPE – a painting of a natural “landscape” that usually has a wide view showing a large area with natural scenery such as mountains, valleys, trees, rivers, and forests
- PORTRAIT – a painting of a person in which the face and its expression is predominant, showing personality, emotion or mood of the person
- STILL LIFE – a painting of common objects which might be natural (like food and plants) or man-made (like dishes, books, jewelry, etc)

Show students a Venn diagram with 3 circles. Label the circles “Landscape,” “Portrait,” and “Still Life.” Tell students that they will eventually have to sort the Famous Painting cards into the appropriate part of the Venn diagram.

Since the diagram has 3 circles, it is more complicated than the “Putting Our Heads Together” one. Discuss the meanings of the parts of the Art Venn Diagram.

Have each group make a Venn diagram to represent the types of paintings, and let them work in small groups to sort the painting cards.

After groups have finished sorting, lead a whole class discussion asking how they classified each painting.

EXTEND!

Have students make a bar graph to display the paintings in another representation.

Have students research other famous paintings and determine how they would be categorized in the Venn Diagram

Take a field trip to the Art Institute of Chicago, where many of these paintings are on display.