

## Parts of a Group

**Name:** Debra F. Erpenbeck  
**School:** Bay Knoll SDA School  
**E-mail:** [mrsderp@hotmail.com](mailto:mrsderp@hotmail.com)  
**Title:** Teacher, Grades 1-4  
**Subject:** Math  
**Intended Grade Levels:** Grades 1-2

**Description:** Students will learn about parts of a group and how to express them as fractions. Students will create a page(s) showing parts of a group as fractions using KidPix. Students will begin by working with manipulatives to form groups. We will work on the concept of equal parts (groups) and the number of groups. Then we will talk about a portion (fraction) of the groups and how to express that. Once the concept has been covered and practiced, students will work on the computer, using KidPix, to create models to illustrate a variety of fractions.

**Faith Integration:** As part of this lesson we will be discussing the groups that God has created. We will discuss a variety of items in nature - such as flowers, bugs, birds, etc. We will talk about why these are in groups. Students will be asked to use nature stamps to create the groups they are going to make into fractions.

The basis for using God's creation, as part of this lesson is to help students recognize the detail and planning God put into our environment. As we discuss this we will talk about why it is important to notice those details and how that effects us. If God spent so much time and effort with the details of nature, what do you think about how much He values each of you?

**Curriculum Benchmarks:** The following benchmarks will be addressed in this lesson:

- ? Math:
  - ? Students will create equal groups from manipulatives.
  - ? Students will create groups based on a given fraction.
  - ? Students will be able to write a fraction to express the group presented.
  
- ? Technology:
  - ? Students will be able to use the mouse to operate KidPix.
  - ? Students will be able to save their document.
  - ? Students will be able to print their document.
  - ? Students will use the tools in KidPix to create a picture representing four or more parts of a group and a fraction for each one.
  - ? Students will be responsible in their use of the computer and its programs both in the completion of their work and in respecting the work of others.

**Materials/Hardware/Software:** The following things will be needed/used for this unit:

? **Materials:**

- ? Teacher's Editions for Math (Harcourt), Grades 1 and 2
- ? Planning Resources CD-ROM (Harcourt), Grades K-2
- ? Peg boards
- ? Rubber bands
- ? Counters
- ? Paper plates
- ? Crayons
- ? Marker
- ? Paper
- ? Index cards
- ? Instruction Sheets (attached)
- ? Activity Sheets (attached)

? **Hardware:**

- ? Computers
- ? Printer
- ? Keyboard
- ? Mouse

? **Software:**

- ? KidPix Deluxe 3 (Broderbund)

**Teacher Preparation:** Teachers will need to complete the following in preparation for this lesson:

1. Load KidPix on each computer (1 disk per computer will be required).
2. Cover opening, closing, saving, and printing from KidPix with students before this lesson.
3. Prepare instruction sheet for KidPix assignment, step by step.
4. Copy needed materials and worksheets.
5. Collect needed materials and place in storage box for use with this lesson.
6. Instruct students about groups.

**Student Preparation:** Students will need to do/participate in the following activities before this lesson:

1. Students will be able to open, close, save and print from KidPix.
2. Students will be able to work productively in groups.
3. Students will be able to follow instruction sheets provided by the teacher.

**Activities/Procedures:** This lesson should be taught over two to four days for 20 to 30 minutes each day. Students may need to work outside that timeframe to complete assigned work.

? Day 1:

- ? Review what is needed to make a group.
- ? Talk about what God has created in nature that comes in groups.
- ? Talk about the need, sometimes, for equal groups.
- ? Work with manipulatives to create a variety of equal groups.
- ? Give students examples of equal groups expressed as fractions.
- ? Talk about what part of the fraction determines the number of groups.
- ? Have students create groups based on predetermined fractions (see attached sheet).
- ? Students will complete worksheets (attached).

? Day 2:

- ? Talk about the wonder and detail God used in nature and the groups that exist.
- ? Talk about how that shows us that we are special to God.
- ? Do a quick review of Day 1.
- ? Introduce the idea of writing a fraction from a set of equal groups.
- ? Practice finding the denominator from the set of equal groups.
- ? Have students choose a numerator to go with each denominator (discuss that it should be no greater than the denominator).
- ? Have students complete worksheets (attached).

? Day 3:

- ? Do a quick review of Day 1 and 2.
- ? Explain to students the instruction sheet for their KidPix project (attached).
- ? Have students explain back to you the process.
- ? Explain the rotation schedule (attached) and enrichment activities (attached) that they will be using.

? Day 4:

- ? Complete rotation schedule from Day 3, if needed.

**Assessment/Evaluation:** Students will be assessed in the following ways:

- ? Worksheets – student worksheets will be graded from the answer key.
- ? Class participation – students will be graded using the rubric attached (note this rubric will be used to assess students on both days 1 and 2, in some cases an area of the rubric may be observed one or both days).
- ? KidPix project – students will be graded using the rubric attached.

## Parts of a Group - KidPix Project

Teacher Name: **Mrs. Erpenbeck**

Student Name: \_\_\_\_\_

CATEGORY	4	3	2	1
Comprehension	Student completed project following all of the directions set by the teacher on the instruction sheet.	Student completed project following most of the directions set by the teacher on the instruction sheet.	Student completed most of the project following some of the directions set by the teacher on the instruction sheet.	Student did not complete the project or followed few of the directions set by the teacher on the instruction sheet.
Time to Complete	Student completed project in less time then allowed.	Student completed project in the time allowed.	Student completed most of the project in the time allowed.	Student failed to complete more than 60% of the project in the time allowed.
Creativity	Student completed project using a variety of colors, patterns, and stamps.	Student completed project using two of the following: a variety of colors, patterns, and stamps.	Student completed project using one of the following: a variety of colors, patterns, and stamps.	Student completed the project using mostly the same color, patterns, and/or stamps.
Organization	Student's work was presented neatly and well organized making it very easy to understand what they did.	Student's work was presented neatly and organized - it was fairly easy to understand what was done.	Student's work was presented in a manner that could be figured out with some explanation.	Student's work was hard to follow and needed much explanation.
Cooperation with Others	Student was able to share time with other students and offered help when needed.	Student was able to share time with other students without causing "waves".	Student had minor problems sharing time with other students.	Student was unable to share time and/or needed to step away from the project for a time.

## Oral Presentation Rubric : Parts of a Group - Class Participation

Teacher Name: **Mrs. Erpenbeck**

Student Name: \_\_\_\_\_

CATEGORY	4	3	2	1
Comprehension	Student is able to accurately answer almost all questions posed by teacher or classmates about the topic.	Student is able to accurately answer most questions posed by teacher or classmates about the topic.	Student is able to accurately answer a few questions posed by teacher or classmates about the topic.	Student is unable to accurately answer questions posed by teacher or classmates about the topic.
Listens to Teacher	Listens intently. Does not make distracting noises or movements.	Listens intently but has one distracting noise or movement.	Sometimes does not appear to be listening but is not distracting.	Sometimes does not appear to be listening and has distracting noises or movements.
Speaks Clearly	Student is understood by teacher and classmates (student is speaking clearly, using complete sentences, and speaking at an appropriate volume).	Student is understood, most of the time, by teacher and classmates (student is doing most of the following: speaking clearly, using complete sentences, and speaking at an appropriate volume).	Student is understood, part of the time, by teacher and classmates (student is doing some of the following: speaking clearly, using complete sentences, and speaking at an appropriate volume).	Often mumbles or can not be understood by teacher and classmates (not speaking clearly, using complete sentences, or speaking at an appropriate volume).
Stays on Task	Stays on task all (100%) of the time.	Stays on task most (99-90%) of the time.	Stays on task some (89%-75%) of the time.	It was hard to tell if student understood what they were to be doing.
Collaboration with Peers	Almost always listens to, shares with, and supports the efforts of others in the group. Tries to keep people working well together.	Usually listens to, shares with, and supports the efforts of others in the group. Does not cause "waves" in the group.	Often listens to, shares with, and supports the efforts of others in the group but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others in the group. Often is not a good team member.

## Predetermined Fractions

(Use with Day 1)

You may want to vary the fractions for your group of students and for the amount of time that you feel you should spend on this concept. Here is a list that I will use for this concept:

$\frac{1}{2}$	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{1}{5}$	$\frac{4}{5}$
$\frac{2}{2}$	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{2}{5}$	$\frac{5}{5}$
$\frac{1}{3}$	$\frac{1}{4}$	$\frac{4}{4}$	$\frac{3}{5}$	

## Rotation Schedule

(Use with Day 3 & 4)

I have set this up for my class (I only have 3 students in grades 1-2 this year). This will need to be modified according to schedule and classroom.

**Day 3:** Each student will receive 10 minutes to work on their project. During rotation 1, while one student (AA) works on the computer, the other two students (BA & SR) will work completing activity #1 at the Math Center. During rotation 2, one student (BA) will work on the computer, the other two students (SR & AA) will work completing activity #2 at the Math Center. During rotation 3, one student (SR) will work on the computer, the other two students (AA & BA) will work completing activity #3 at the Math Center.

**Day 4:** Each student will receive 10 minutes to work on their project. During rotation 1, while one student (AA) works on the computer, the other two students (BA & SR) will work completing activity #4 at the Math Center. During rotation 2, one student (SR) will work on the computer, the other two students (BA & AA) will work completing activity #2 at the Math Center. During rotation 3, one student (BA) will work on the computer, the other two students (AA & SR) will work completing activity #3 at the Math Center.

## Activities

(Use with Day 3 & 4)

**Activity #1:** Write  $\frac{1}{3}$  on 3 index cards,  $\frac{1}{4}$  on 2 cards, and  $\frac{1}{2}$  on 1 card. On 6 other cards, draw the following: a circle divided into thirds, a rectangle in thirds, a square in thirds, a circle in fourths, a square in fourths, and a triangle in halves. Color 1 section of each shape. (Each student will make one set – have each student put their initials on the front of the card).

**Activity #2:** Students will work with geoboards, rubber bands, crayons, and geoboard dot paper (create a grid on a spread sheet, use Webdings font and type a lower-case “n” in each square, make one dot for each peg on the geoboard). One child uses rubber bands to make a plane figure (like a square, triangle, or rectangle) then gives the

geoboard to their partner, who used rubber bands to divide the plane figure into halves. Both partners draw the original figure and its divisions on the geoboard dot paper. Partners should take turns making plane figures and dividing them into halves and quarters.

**Activity #3:** Have children make a fraction display with two-colored counters. Tell them to use their counters to model fractions they have learned in Days 1-2. Have students write a fraction for each group and place it next to the group of counters.

**Activity #4:** Students will use the index cards created on Day 3 from Activity #1. Students will shuffle all of the cards together (include one set of cards per player) and deal 5 cards to each player. Place the remaining cards face down in the middle of the players. The player to the left of the dealer will play first; play is as follows and will continue the same for each player to the left: the player will place any matches in front of them (a match consists of one fraction and one drawing of that fraction). Then they draw the number of cards they played and add them to their hand. Their turn is over. If they have no matches in their hand, they may discard 2 cards to discard pile and add 2 more to their hand from the draw pile. Their turn is over. A student wins when they have 5 matches in front of them at the end of a round (meaning each child gets the same number of turns – you may want to have a cup or another object to place by the dealer so you know when the round ends). If more than one student has 5 matches, then immediately play any matches still in their hand. Then one with the most is the winner.

## Worksheets

(These worksheets are from the Planning Resources CD-ROM – Harcourt – Grades K-2)

**Day 1:** Students in First Grade will complete the following:

- ? 25.1 – Reteach, Practice, and Challenge
- ? 25.2 – Reteach and Practice

Students in Second Grade will complete the following:

- ? 24.1 – Reteach, Practice, Challenge, and Problem Solving

**Day 2:** Students in First Grade will complete the following:

- ? 25.3 – Reteach, Practice, (Challenge – do for homework on Day 4)
- ? 25.5 – Reteach, Practice, and Problem Solving

Students in Second Grade will complete the following:

- ? 24.2 – Reteach, Practice, Challenge, and Problem Solving
- ? 24.3 – Reteach and Practice

## Follow-up Activities

I would have student continue to use activities and work with them to create another KidPix project if they struggled with the first one. When they show understanding of the process, I would have them work with other fractions and let them create their own way to display them.

## Instruction Sheet for KidPix Project

1. Open KidPix program.
2. Choose your name from the menu.
3. Click ok.
4. Use the stamp feature to create groups as follows (choose nature stamps):
  - ? Group 1: 9 stamps
  - ? Group 2: 6 stamps
  - ? Group 3: 4 stamps
  - ? Group 4: 10 stamps
5. Use the pencil feature to draw circles around each group as follows:
  - ? Group 1: 3 equal groups
  - ? Group 2: 2 equal groups
  - ? Group 3: 4 equal groups
  - ? Group 4: 5 equal groups
6. Write a fraction by each group using the pencil feature with the squiggly line (free draw). Remember your denominator should equal the number of equal groups you have. For example, group 1 had 9 stamps, but should be divided into 3 equal groups. Your numerator may be any number 1 up to whatever the denominator is. For example if the denominator is 3, your numerator may be 1, 2 or 3.
7. Use the fill (paint bucket) tool to fill in the number of groups to match your numerator. For example if you choose 2 for your numerator, you should fill 2 circles/groups.
8. Save your picture.
9. Print your picture.
10. Turn in your picture to your teacher (make sure your name is on it somewhere).