

**Pennsylvania Governor's Institute
for Mathematics Educators
2004**

Names of Group Members:

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Topic / Theme: Neighborhood Fact Families

Level: Grade 1-3

Time Element: 3 Day Unit

NCTM Standards Addressed:

Understand meanings of operations and how they relate to one another.

PA Math Standards Addressed:

2.1.3. K. Describe the inverse relationship between addition and subtraction.

2.2.3. C. Demonstrate the concept of multiplication as repeated addition in arrays.

2.5.3. C. Select and use an appropriate method, materials and strategy to solve problems, including mental mathematics paper and pencil and concrete objects.

Math Assessment Anchors Addressed:

M3. A. 2. 1. Understand various meanings of operations and the relationship between them.

Reading Assessment Anchors Addressed:

R.3.1.4. Retell or summarize the major ideas or themes of the text.

R.3.A.2.1. Identify the meaning of vocabulary from various subject areas.

Objectives:

To represent multiplication as repeated addition.

To demonstrate the inverse relationship between addition and subtraction using fact families.

Instructional Strategies and Plan (include strategies used to help different types of learners, i.e. auditory, visual, etc.):**Introductory Activity**

Using student-drawn houses from previous unit children will

1. Identify the number of family members in their house and attach post-it to the house.
2. On a different color post-it children will write how many pets live in their house.
3. Compare and contrast the number of pets to the number of people in all houses.
 - Represent this data on a class-made graph.
 - Create a classroom story about our neighborhood.

Visual Activities-drawing, posting, writing, and graphing

Auditory Activities-class discussion, teacher instruction and verbal prompts

Kinesthetic-drawing, posting, finger counting, writing, clothes pins and graphing

Activity 2 Introducing Fact Families Up To 6

1. Introduce fact families up to 6 in written form by teacher demonstration on board.
2. Display class-size set of fact families in the shape of a house all around room.
3. Pick a fact family house out of the neighborhood each day that you would like to live in that day (that will be the house you may take home for homework practice).
4. Children will make a fact family house with their assigned fact (each table will be assigned a different number to construct their fact family (they may not repeat the same fact at their table).
5. Children will report out on their work using conversational tone and complete sentences.

Activity 3 Milk Carton Fact Families (this may also be a center so that all children will have a set of fact family milk cartons)

1. Each child will receive a milk carton, four clothes pins and clothes pin people (or cut out people) for manipulatives.
2. Teacher will demonstrate and discuss the use of milk carton as their house and verbalize the connection from Activity One.
3. Teacher will give directions on how to make milk carton fact families with children's participation.

Steps

- Paint house (this can be done on a different day).
- Identify number of house.
- Color the appropriate number of family members and place in carton.
- Children will have to find the correct fact clothes pins to clip to roof of house (using the people manipulatives if necessary).

Materials/Resources:

Milk carton houses

1. milk cartons
2. paint and brushes
3. clothes pins
4. clothes pin container
5. people templates

Clothes line for reinforcement

1. clothes line hanging in room
2. numbered clothes pins

Neighborhood

1. complete student drawn houses made in previous unit
2. two different colors of post-it notes

Fact Family Houses

1. house template
2. board and chalk
3. markers

Additional materials for remediation

1. dominoes
2. flash cards
3. manipulatives

Interdisciplinary Connections:

- **Reading**

1. Anno's Counting House by Mitsumasa Anno
2. The Three Little Pigs by Michael Lewis
3. Domino Addition by Long

- Vocabulary word search

www.varietygames.com/WS/

- **Technology**

1. Inverse relationship of addition facts
www.aaamath.com/B/g210a_x1.html
2. Addition Facts Memory Game
 - www.dositey.com/addsub/memoryadd.html
3. Practice With Fact Families
 - www.ezscool.com/example/EZGames?Grade=3&Name=FactFamily1
4. Addition and Subtraction Flashcards
 - www.aplus.com/Flashcards/index.html

Assessment Strategies:

- **Formative Evaluation (checking student understanding during the lesson):**

1. Teacher will observe how well children are progressing by observation, child feedback and verbal probes.
2. Teacher will observe and review finished products.

- **Summative Evaluation (how will it be determined that the objectives were achieved?):**

1. Given a list of facts children will be able to identify and group those facts into fact families.
2. Children will be able to identify fact families by having flash card drills with the teacher one on one.
3. Children will be able to make fact family houses and fact family milk cartons and be able to verbalize facts on those items.

Correctives/Remediation:

Teacher one on one, small groups or buddy groups

1. Practice facts on classroom clothes line which represents number line.
2. Child can review fact families using dominoes.
3. Child may use manipulatives with teacher or do milk carton fact family houses one on one with teacher.

Extensions/Enrichment:

1. Children may create a classroom neighborhood by making several milk carton math fact houses.
2. Children can work individually or with a buddy to make a classroom book out of house pattern with math fact families (they may do as high as they are able).
3. Children may make fact family multiplication houses for those who are way above grade level.

Special Accommodations (special needs students)

- **Description of the Special Needs Student Selected:**

- Thomas has special needs in emotional support for conversational skills. He needs to recognize and express his feelings and to develop problem solving techniques.
- Thomas is a motivated outside the regular classroom. It is our expectation that hands-on activities will motivate him without frustration.

1. Improve conversational skills.
2. Improve operational Math skills.
3. Give opportunity and prompts to identify and express feelings.
4. Direct and encourage problem solving in conflict situations.

- **Accommodations to Use with this Student:**

1. Provide peer models and verbal prompts and cues.
2. Provide remedial activity, drill, and practice, and additional center times.
3. Clearly define classroom behavior management plan with expectations and behavior consequences.