Principles & Standards

Principles & Standards for School Mathematics outlines the essential components of an effective school mathematics program.

The NCTM's Principles & Standards for School Mathematics

The **Principles** are the fundamentals to an effective mathematics education. The **Standards** are descriptions of what mathematics instruction should enable students to learn. Together the **Principles and Standards** offer a comprehensive and coherent set of learning goals, serving as a resource to teachers and a framework for curriculum. Our resource offers exercises written to the **NCTM Process and Content Standards** and is inspired by the **Principles** outlined below.

Six Principles for School Mathematics

Equity

EQUITY: All students can learn mathematics when they have access to high-quality instruction, including reasonable and appropriate accommodation and appropriately challenging content.

Curriculum

CURRICULUM: The curriculum must be coherent, focused, and well articulated across the grades, with ideas linked to and building on one another to deepen students' knowledge and understanding.

Teaching

TEACHING: Effective teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well.

Learning

LEARNING: By aligning factual knowledge and procedural proficiency with conceptual knowledge, students can become effective learners, reflecting on their thinking and learning from their mistakes.

Assessment

ASSESSMENT: The tasks teachers select for assessment convey a message to students about what kinds of knowledge and performance are valued. Feedback promotes goal-setting, responsibility, and independence.

Technology

TECHNOLOGY: Students can develop a deeper understanding of mathematics with the appropriate use of technology, which can allow them to focus on decision making, reflection, reasoning, and problem solving.

Our resource correlates to the six Principles and provides teachers with supplementary materials which can aid them in fulfilling the expectations of each principle. The exercises provided allow for variety and flexibility in teaching and assessment. The topical division of concepts and processes promotes linkage and the building of conceptual knowledge and understanding throughout the student's grade and elementary school career. Task sheet problems offer space for reflection, and opportunity for the appropriate use of technology. The drill sheets are provided to help students with their procedural proficiency skills.

NAME: _____

Task Sheet 5

5) **Sarah bought two t-shirts and three posters at a concert. She paid with two $100 bills.**

T-shirts: $45 each
Posters: $15 each

Show at least three different ways Sarah would get change using $5, $10, and $20 denominations.

a) _____
_____
_____

b) _____
_____
_____

c) _____
_____
_____

SAMPLE

Reflection

1. What coins would you use to make change instead of bills?

2. Why would you choose the coins you did to make change?

3. How would you make change with the coins?

Data Analysis and Probability CCP3110-2

Review B

Galen and Tessa go to the target range for archery practice. Colors on the target indicate a different number of points.

- Yellow is 50 points
- Red is 40 points
- Blue is 30 points
- Black is 20 points
- White is 10 points

Answer the following questions using the information above. Remember to show your work and explain your thinking using diagrams, pictures, and charts.

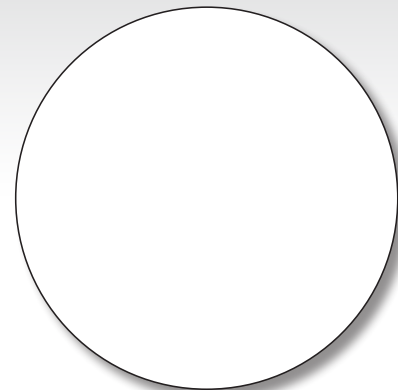**a)   What are all the ways Galen can score 200 points?**

Show your work:

Answer: _____

b)   What are all the ways that Galen and Tessa as a team can score 150 points?

Show your work:

Answer: _____

c)   One way to organize data is to use the same shape as indicated in the question, in this case, an archery target. Use the circle to the right to show the possible point combinations when scoring 300 points.

Calculating Popsicle Sales

The School Parent Council is having a Popsicle sale to raise money for the school library.

Look at the section of the circle graph carefully. The smallest section will be the least number of popsicles sold. Using the information below, finish the circle graph by writing the grade and amount of popsicles sold into their corresponding section.
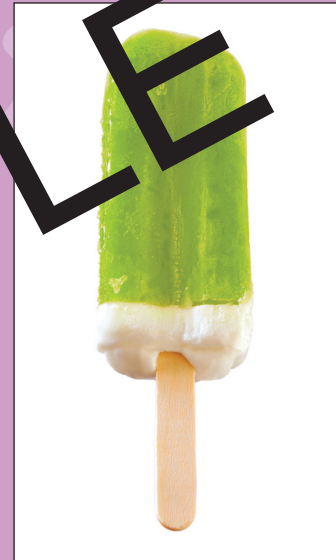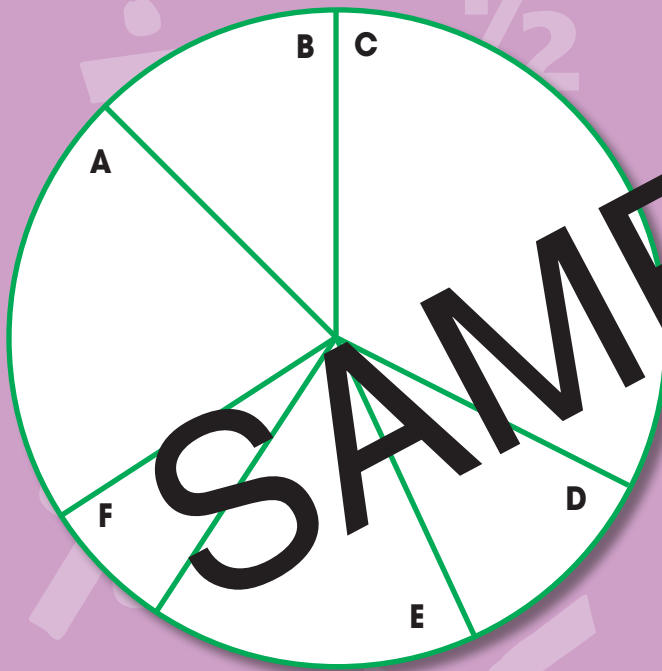
Grade 1: 48 Popsicles sold	Grade 2: 18 Popsicles sold	Grade 3: 25 Popsicles sold
Grade 4: 15 Popsicles sold	Grade 5: 30 Popsicles sold	Grade 6: 19 Popsicles sold

SAMPLE

a) **Which grade bought the most popsicles?**

b) **Which grade bought the fewest popsicles?**

c) **How many more popsicles did the Grade 1s buy than the Grade 5s?**

d) **How many popsicles were sold in all?**