NCTM Process Standards Rubric

Data Analysis & Probability – Drill Sheets

Drills

Column headings (drill sheets): Warm-up 1, Timed Drill 1, Timed Drill 2, Warm-up 2, Timed Drill 3, Timed Drill 4, Warm-up 3, Timed Drill 5, Timed Drill 6, Warm-up 4, Timed Drill 7, Timed Drill 8, Warm-up 5, Timed Drill 9, Warm-up 6, Timed Drill 10, Timed Drill 11, Review A, Review B, Review C

Expectations

Instructional programs from pre-kindergarten through grade 12 should enable all students to:

GOAL 1: Problem Solving
- build new mathematical knowledge through problem solving;
- solve problems that arise in mathematics and in other contexts;
- apply and adapt a variety of appropriate strategies to solve problems;
- monitor and reflect on the process of mathematical problem solving.

GOAL 2: Reasoning & Proof
- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

GOAL 3: Communication
- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

GOAL 4: Connections
- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

GOAL 5: Representation
- create and use representations to organize, record, and communicate mathematical ideas;
- select, apply, and translate among mathematical representations to solve problems;
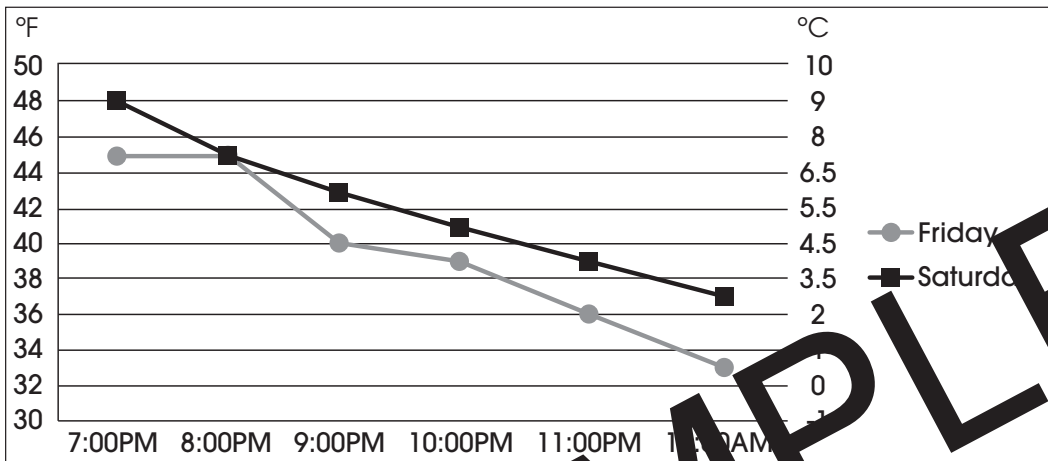- use representations to model and interpret physical, social, and mathematical phenomena.

9a) **The thermograph sheet below shows how temperature changed during a six hour period for two days.**

Ex: What is the pattern in temperature drop on Friday between 10:00 pm and 12:00 am?   Drops 3°F (2°C) each hour
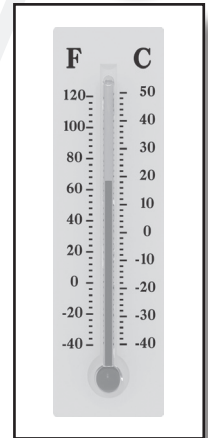
Nighttime Temperatures

i) Which day had the warmest temperature between 7:00 PM and 12:00 AM?   _____

ii) Which day had the coldest temperature between 7:00 PM and 12:00 AM?   _____

iii) What temperature was recorded at 9:00 PM on Friday?   _____

iv) What temperature was recorded at 11:00 PM on Saturday?   _____

v) What time on both days was the same temperature recorded?   _____

vi) The temperature on Friday at 10:00 PM was the same as the temperature on Saturday at what time?   _____

vii) How much did the temperature drop on Friday from 7:00 PM to 12:00 AM?   _____

viii) How much did the temperature drop on Saturday from 7:00 PM to 12:00 AM?   _____

ix) What was the average drop between the two days?   _____

x) On which day did the temperature dip to 36°F (2°C)?   _____

xi) What was the difference in temperature at 10:00 PM between Saturday and Friday?   _____

xii) The biggest drop in temperature on Friday happened between what hours?   _____

xiii) The biggest drop in temperature on Saturday happened between what hours?   _____

xiv) Which day saw the temperature go closest to the freezing point?   _____

xv) On Saturday between 7:00 PM and 10:00 PM, the temperature dropped how many degrees?   _____

xvi) What is the pattern in temperature drop on Saturday between 8:00 PM and 12:00 AM?   _____

Review C

a) **The following column chart shows the number of boxes of each type of cookie sold for three different groups at the Wildlife Scout cookie sale.**

Wildlife Scout Cookie Sales

SAMPLE

Legend:
- ■ Chocolate
- ■ Peanut Butter
- ■ Mint
- ☐ Coconut
- ☐ Caramel
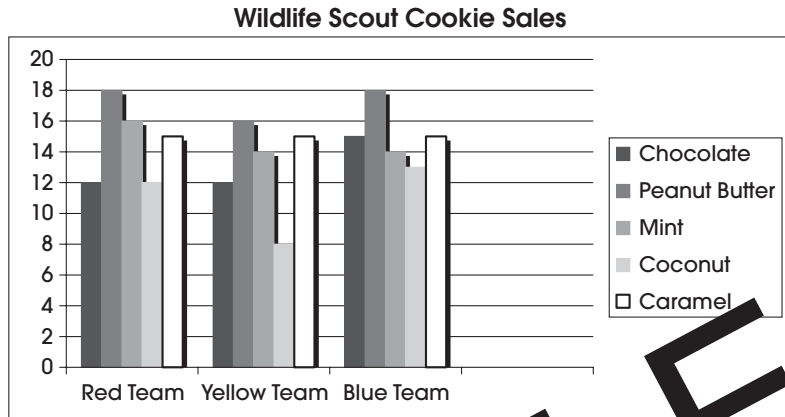
i) How many total cookie sales did the Red Team have?   _____

ii) How many total cookie sales did the Yellow Team have?   _____

iii) How many total cookie sales did the Blue Team have?   _____

iv) Forty percent of the cookie sales for the Blue Team were
   for which two cookies?   _____

v) Thirty four cookie sales for the Red Team were which
   two varieties?   _____

vi) The Yellow Team had twice as many Peanut Butter cookie
   sales as sales of which cookie?   _____

vii) The Yellow Team and Red Team both had 12 of which cookie sales?   _____

viii) The three teams had equal sales for which type of cookie?   _____

ix) The Red Team had an equal number of which cookies sold?   _____

x) The Blue Team has a 1:1 ratio in which two cookie sales?   _____

xi) What is the ratio in Mint Cookie sales between the
   Yellow Team and Blue Team?   _____

xii) Twenty percent more of which cookies were sold by the
   Red Team than Caramel cookies?   _____

xiii) Which team had the smallest number of sales for
   one type of cookie?   _____

xiv) What is the ratio of Peanut Butter sales to Chocolate
   sales for the red team?   _____

xv) There is one less total sales of which cookies than there
   were total sales of Caramel cookies for all three teams?   _____

xvi) What is the average number of Chocolate cookie sales
   for all three teams?   _____

Ordering

The graph below shows the size of the U.S. military forces. Working with a partner or in a small group, use this graph to complete the activity.
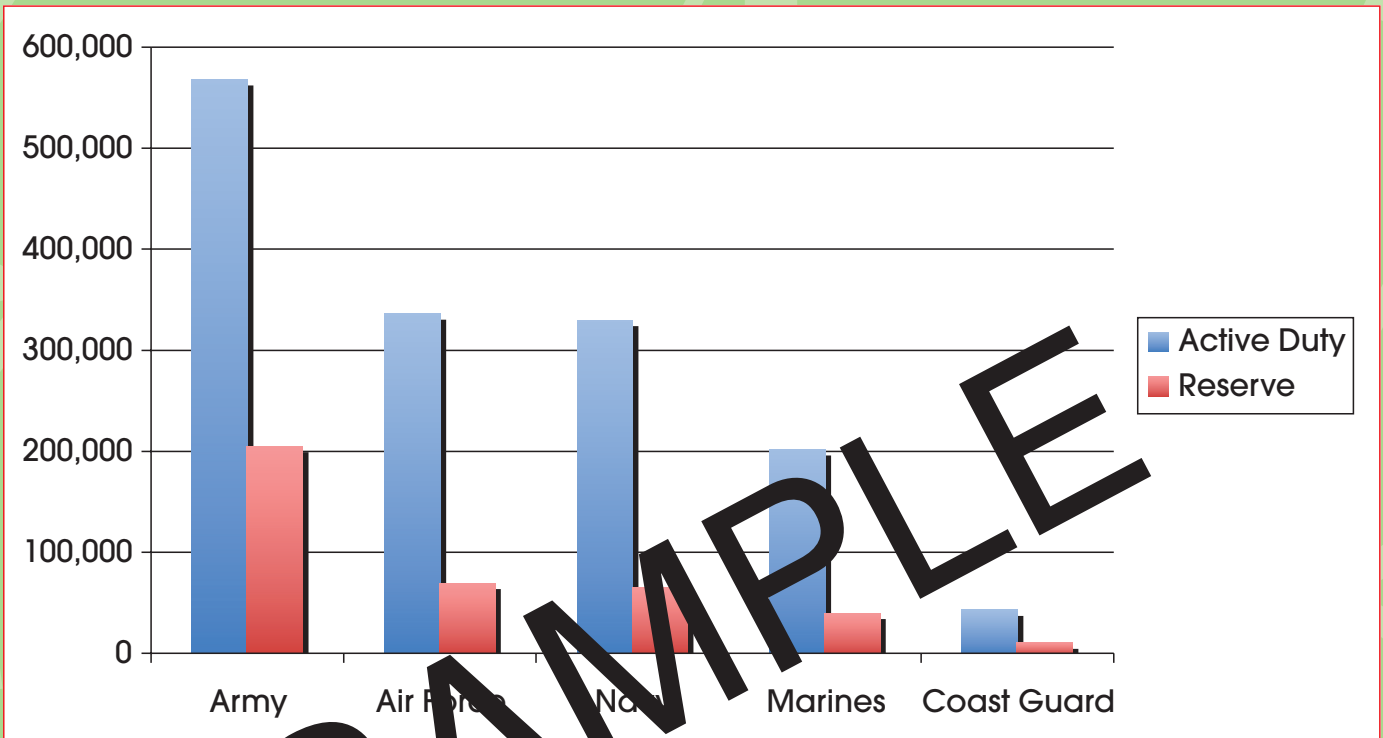
a) List the armed forces active duty sizes from least to greatest.

_____   _____   _____   _____   _____

b) List the armed forces reserved sizes from least to greatest.

_____   _____   _____   _____   _____

c) List three comparisons that can be drawn between the armed forces.

_____   _____   _____

d) List four conclusions that can be drawn from this data.

_____   _____   _____   _____