

Process Standards Rubric

Number and Operations – Drill Sheets

Expectations Instructional programs from pre-kindergarten through grade 12 should enable all students to:	Drills																				
	Warm-up 1	Timed Drill 1	Warm-up 2	Timed Drill 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	
GOAL 1: Problem Solving <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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. 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



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 middle school career. Each of the drill sheet problems help students with their procedural proficiency skills, and offers space for reflection and opportunity for the appropriate use of technology.



8a) Compare the following numbers using either $>$, or $<$, or $=$.

i) $6/7$ $3/4$

ii) $7/8$ $2/3$

iii) $1/3$ $2/5$

iv) $4/3$ $5/4$



b) Solve the following.

i) $(44 + 23) - 42 \div 6 =$

ii) $33 + 12 \div 4 + (40 + 15) =$

iii) $(24 \div 8)^2 =$

iv) $4^2 - 12 + (28 - 8)^2 =$

c) Round the following number to the nearest whole number.

Ex: $256.13 = 256$

i) $365.12 =$

ii) $4199.89 =$

iii) $0.513 =$

d) Put the following sets of decimals in order from least to greatest.

i) $0.404, 0.66, 1.01, 1.001, 0.11$ _____

ii) $5.203, 5.003, 5.030, 5.503$ _____

e) Divide the following and round to the nearest hundredth.

i) $567.32 \div 17 =$

ii) $12.672 \div 3.2 =$

iii) $\$652.08 \div 13 =$

iv) $198.80 \div 71 =$



Reflection

You take your two best friends out for lunch. Your treat! The bills come to \$14.50, \$12.80 and \$15.75. If you tip the waitress 15%, what is your total bill (to the closest cent)?

Answer:



12a) Solve the following.

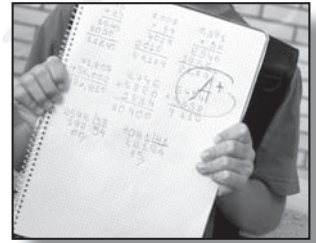
i) $\begin{array}{r} \$43.65 \\ \times 98 \\ \hline \end{array}$

ii) $\begin{array}{r} 2.891 \\ \times 0.2 \\ \hline \end{array}$

iii) $\begin{array}{r} \$336.78 \\ \times 369 \\ \hline \end{array}$

iv) $(3.8 + 5.8) \div (6.8 - 3.8) =$

v) $(7.5 - 0.25) \times (6.22 + 4.01) =$



b) Write a fraction for each decimal.

Ex: $0.450 = \frac{45}{1000} = \frac{9}{200}$

Ex: $1.222 = \frac{1222}{1000} = \frac{611}{500}$

i) $0.125 =$

ii) $0.250 =$

iii) $1.333 =$

iv) $0.90 =$

v) $3.8 =$

vi) $75.75 =$

c) Round the following number to the nearest 1000.

i) $77\,643.2 =$

ii) $1\,256\,80 =$

iii) $555 =$

d) Write the number 90,370 in words. _____

e) In the chart below, five math scores (out of 25) are listed for Eric and Maggie. For each student, calculate the mean, median and mode.

	Test 1	Test 2	Test 3	Test 4	Test 5	Mean	Median	Mode
Eric	22	19	25	22	17			
Maggie	21	23	17	22	17			

Explore With Technology

Use a calculator to complete the following. Keep in mind the proper order of operations!

$17\,234 + 234.1 - (32 - 20)^2 \times 7$

NAME: _____



13a) Samantha planted 6 cedars and 9 birch trees in her backyard. What is the ratio of cedars to birch trees?

Ex: Ratio of 5 to 9 = 5 : 9



b) Find the prime factors of the following numbers. Ex: $12 = 2 \times 2 \times 3$

i) $18 =$

ii) $30 =$

iii) $36 =$

iv) $72 =$

c) What is the greatest common factor of the following pairs of numbers?

Ex: 12 and 16 = 4 ($12 \div 4 = 3$; $16 \div 4 = 4$)

i) 12 and 18

ii) 15 and 36

d) If the sales tax is 7%, what is the total cost of items priced as follows (to the nearest cent)?

i) \$24.00

ii) \$52.60

e) Solve the following

i) $\frac{2}{3} \times \frac{4}{5} =$

ii) $\frac{7}{8} \div \frac{3}{10} =$

iii) $\frac{3}{4} + \frac{7}{8} =$

iv) $\frac{6}{7} - \frac{2}{3} =$

v) $(-3) + (4)(-2) =$

vi) $(-2)(-18) - 6^2 =$

vii) $75 - (-3)(-6) =$

viii) $9^2 + 3^3 =$

ix) $\begin{array}{r} \$175.50 \\ \times \quad 38 \\ \hline \end{array}$

x) $\begin{array}{r} 90.091 \\ \times \quad 0.2 \\ \hline \end{array}$

xi) $\begin{array}{r} \$3456.04 \\ \times \quad 216 \\ \hline \end{array}$

xii) $\begin{array}{r} 0.9002 \\ \times \quad 0.77 \\ \hline \end{array}$