***Snake River School District No. 52*** Fifth Grade Math Standards Breakdown & Resource Alignment

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.OA.1.Useparentheses,brackets,orbraces innumericalexpressions,andevaluate expressionswiththesesymbols.  Connections:5.OA.2 | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.5, Useappropriatetools strategically.  5.MP.8.Lookfor andexpress regularityinrepeated reasoning. | This standardbuilds ontheexpectationsof third gradewherestudents are expectedtostartlearningtheconventionalorder.Students needexperiences withmultipleexpressions thatusegroupingsymbols throughouttheyear to developunderstandingof whenandhowtouseparentheses,brackets,and braces. First,students usethesesymbolswithwholenumbers.Thenthe symbols canbe usedasstudents add,subtract,multiplyanddividedecimals andfractions.  Examples:  •(26+ 18) | **Vocabulary:**  **Prior**  •Expression  •Order of operations  **Explicit**  •Parentheses  •Brackets  •Braces | Math Connects 2-7 Associative Property of Addition; MC 3-2 Distributive Property ; MC 3-7 Multiplication Properties;MC 5-7 order of Operations |

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| 5.OA.2.Writesimpleexpressions thatrecord calculationswithnumbers,and interpret numericalexpressionswithoutevaluatingthem. *Forexample,express thecalculation“add8*  *and7,thenmultiplyby2” as 2*×(*8+ 7*)*. Recognizethat3*×(*18932+921*) *isthreetimesas large as 18932 + 921, without having to calculate the indicated sum or product.* | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.7. Look for and make use of structure.  5.MP.8. Look for and express regularity in repeated reasoning. | Students usetheirunderstandingof operations andgroupingsymbols towrite expressionsandinterpret themeaningof anumericalexpression.  Examples:  •Studentswriteanexpressionfor calculations giveninwordssuchas  “divide144by12,andthen subtract7/8.” They write(144÷ 12)–7/8.  Students recognize that 0.5 x (300 ÷ 15) is ½ of (300 ÷ 15) without calculating the quotient. | Vocabulary: |  |

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| 5.OA.3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number  0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. | 5.MP.2. Reason abstractly and quantitatively.  5.MP.7. Look for and make use of structure. | Example:  Use the rule “add 3” to write a sequence of numbers. Starting with a 0, students write 0, 3, 6, 9, 12, . . .  Use the rule “add 6” to write a sequence of numbers. Starting with 0, students write 0, 6, 12, 18, 24, . . .  After comparing these two sequences, the students notice that each term in the second sequence is twice the corresponding terms of the first sequence. One way they justify this is by describing the patterns of the terms. Their justification may include some mathematical notation (See example below). A student may explain that both sequences start with zero and to generate each term of the second sequence he/she added 6, which is twice as much as was added to produce the terms in the first sequence. Students may also use the distributive property to describe the relationship between the two numerical patterns by reasoning that 6 + 6 + 6 = 2 (3 + 3 + 3).  0, +6 6, +6 12, +618, +6 24, . . . Continued on next page  Once students can describe that the second sequence of numbers is twice the corresponding terms of the first sequence, the terms can be written in ordered pairs and then graphed on a coordinate grid. They should recognize that each point on the graph represents two quantities in which the second quantity is twice the first quantity.  Ordered pairs  (0, 0) (3, 6) (6, 12) (9, 18)  (12, 24) | **Vocabulary:**  **Prior**  •Sequence •Pattern  **Explicit**  •Corresponding •Ordered pair  •Coordinate plane | Math Connects Chapter 6  6-6 function tables |

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| 5.NBT.1.Recognizethatinamulti-digit number, adigitinoneplacerepresents 10times asmuchas it represents intheplaceto its right and1/10of whatit represents intheplaceto its left.  Connections:5.NBT.2 | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Infourthgrade,students examinedtherelationships of thedigits innumbersfor wholenumbers only.This standardextends this understandingto the relationshipof decimalfractions.Studentsusebasetenblocks,pictures of base ten blocks,andinteractive imagesof basetenblocks tomanipulate and investigatetheplacevalue relationships.Theyusetheir understandingof unit fractionstocomparedecimalplaces andfractional languageto describethose comparisons.  A student thinks, “I know that in the number 5555, the 5 in the tens place (5555) represents 50 and the 5 in the hundreds place (5555) represents 500. So a 5 in the hundreds place is ten times as much as a 5 in the tens place or a 5 in the tens place is 1/10 of the value of a 5 in the hundreds place.  To extend this understanding of place value to their work with decimals, students use a model of one unit; they cut it into 10 equal pieces, shade in, or describe  1/10 of that model using fractional language (“This is 1 out of 10 equal parts. So it is 1/10”. I can write this using 1/10 or 0.1”). They repeat the process by finding  1/10 of a 1/10 (e.g., dividing 1/10 into 10 equal parts to arrive at 1/100 or 0.01) and can explain their reasoning, “0.01 is 1/10 of 1/10 thus is 1/100 of the whole unit.”  In the number 55.55, each digit is 5, but the value of the digits is different because of the placement. | **Vocabulary:**  **Prior**  •Place value | MC 1-1place value thru billions  Not directly addressed in the text book can be taught in  3-1 & 4-1 teach place value with it |

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| 5.NBT.2. Explainpatternsinthenumberof zerosof theproductwhenmultiplyinganumber bypowers of 10,andexplainpatternsinthe placement of thedecimalpointwhenadecimal ismultiplied ordividedbyapowerof 10.Use whole-numberexponents todenotepowers of  10.  Connections:5.NBT.1 | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Examples:  Students might write:  • 36x 10 = 36x 101=360  • 36x 10 x 10 =36x 102= 3600  • 36x 10 x 10x 10=36 x 103=36,000  • 36x 10 x 10x 10x 10 = 36 x 104=360,000  Students mightthinkand/or say:  •Inoticedthateverytime,Imultiplied by10Iaddeda zerototheendof thenumber.Thatmakessensebecauseeach digit’svaluebecame10 timeslarger. Tomakeadigit10times larger, Ihaveto moveit oneplace valuetotheleft.  •WhenImultiplied 36 by10,the30became300.The6became60orthe  36became360.SoIhadtoaddazeroattheendtohavethe3 represent3one-hundreds (insteadof 3tens) andthe6 represents 6 tens (insteadof 6ones).  Students shouldbeableto usethesametypeof reasoningasabovetoexplain whythefollowingmultiplication anddivisionproblembypowers of 10make sense.  •523×103 =523,000Theplacevalueof 523 is increasedby3places.  •5.223×102 =522.3Theplacevalueof 5.223isincreasedby2places.  •52.3÷101 =5.23Theplacevalueof 52.3isdecreased byoneplace. | **Vocabulary:**  **Prior**  •Decimal  **Explicit**  •Power of ten •Exponent | MC 3-1 multiplication patterns  4-1 division patterns |

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| 5.NBT.3.Read,write,and comparedecimalsto thousandths.  a.Readandwritedecimalstothousandths usingbase-tennumerals,numbernames, andexpandedform,e.g.,347.392=  3×100+ 4×10+ 7×1+ 3×(1/10)+ 9×(1/100) + 2×(1/1000).  b. Comparetwodecimalstothousandths basedonmeaningsof thedigits ineach place,using>,=,and<symbols torecord theresults of comparisons. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Students buildontheunderstandingtheydevelopedinfourthgradetoread, write,andcomparedecimals tothousandths.Theyconnecttheir prior experienceswithusingdecimalnotationfor fractions andadditionof fractions withdenominatorsof 10and100.Theyuseconcretemodelsandnumber lines toextendthis understandingto decimalstothethousandths.Modelsmay includebasetenblocks,placevaluecharts,grids,pictures,drawings, manipulatives, technology-based, etc.Theyreaddecimalsusingfractional languageandwritedecimals infractionalform,aswell as inexpandednotation as showinthestandard3a.This investigationleadsthemtounderstanding equivalenceof decimals(0.8= 0.80= 0.800).  Example:  Someequivalentforms of 0.72are:  72/100 70/100+2/100  7/10+ 2/100 0.720  7x (1/10)+2x (1/100) 7x (1/10)+2x (1/100) + 0x (1/1000)  0.70+ 0.02 720/1000  Students needto understandthesizeof decimalnumbersandrelatethemto commonbenchmarkssuchas0,0.5(0.50and0.500),and1.Comparingtenths totenths,hundredths tohundredths,andthousandthstothousandths is simplified ifstudents usetheir understandingoffractions tocomparedecimals.  Example:  Comparing0.25and0.17, astudentmightthink,“25hundredths ismorethan17 hundredths”. Theymayalsothinkthatit is8hundredths more.Theymaywrite this comparisonas0.25>0.17andrecognizethat0.17<0.25isanotherwayto expressthiscomparison.  Comparing0.207to0.26,a studentmightthink,“Bothnumbershave 2tenths, soIneedtocomparethehundredths.Thesecondnumber has6hundredths andthefirstnumberhasnohundredthssothesecondnumbermustbelarger. Another studentmightthinkwhilewritingfractions,“I knowthat0.207is207 thousandths (andmaywrite207/1000).0.26is26hundredths (andmaywrite  26/100)butIcanalsothinkof it as260thousandths (260/1000).So,260thousandths is more than 207 thousandths. | **Vocabulary:**  **Prior**  •Tenths •Hundredths  •Expanded form •>, =, and <  **Explicit**  •Thousandths | (A)  MC 1-5 place value through thousands  Make connection  (B)  MC 1-6 compare decimals |

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| 5.NBT.4.Useplacevalueunderstandingto rounddecimalstoanyplace. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Whenroundingadecimaltoagivenplace,studentsmayidentifythetwo possibleanswers,andusetheir understandingof placevalueto comparethe givennumbertothepossibleanswers.  Example:  Round14.235to thenearesttenth.  •Students recognizethatthepossibleanswer mustbeintenthsthus, itis either14.2or14.3.Theythenidentifythat14.25is closer to14.2(14.20) thanto14.3(14.30).  •Theymaystateinwords 25 hundredths is closer to20hundredthsthan to30 hundredths. | **Vocabulary:**  **Prior**  rounding | MC 2-1 round whole numbers and decimals  MC 3-8 rounding money |

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| 5.NBT.5.Fluentlymultiplymulti-digit whole numbersusingthestandardalgorithm. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure.  5.MP.8. Lookfor andexpress regularityinrepeated reasoning. | Inprior grades,students usedvarious strategies tomultiply. Students can continuetousethesedifferentstrategies aslongastheyareefficient,butmust alsounderstandandbe ableto usethestandardalgorithm.Inapplyingthe standardalgorithm,students recognizetheimportanceof placevalue.  Example:  •123x 34.Whenstudents applythestandardalgorithm,they,  decompose34into30 +4.Thentheymultiply123by4,the valueof the numberintheones place,andthenmultiply123by30,the valueof the  3inthetensplace,andaddthetwoproducts. | **Vocabulary:**  **Explicit**  •Algorithm | MC 3-4 multiply by one digit  &  MC 3-6 multiply by 2 digit |

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| 5.NBT.6.Findwhole-numberquotientsof whole numberswithup tofour-digitdividends andtwo- digit divisors,usingstrategies based on place value,thepropertiesof operations, and/orthe relationshipbetween multiplication anddivision. Illustrateandexplainthecalculationbyusing equations, rectangular arrays,and/or area models. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.7. Lookfor andmakeuse ofstructure. | Infourthgrade,students’experienceswithdivisionwere limitedtodividingby one-digit divisors.This standardextends students’prior experienceswith strategies, illustrations, andexplanations.Whenthetwo-digitdivisorisa “familiar”number,astudentmightdecomposethedividendusingplacevalue.  Examples:  •Usingexpandednotation ~ 2682÷ 25=(2000+ 600+ 80 +2)÷ 25  •Usinghis orherunderstandingof therelationshipbetween100and25, astudentmightthink~  - Iknowthat100dividedby25is4so200dividedby25is8and  2000dividedby25is80.  - 600dividedby25 hastobe 24.  -Since3x 25is75,Iknowthat80dividedby25 is3withareminder of5.(Notethatastudentmight divideinto82andnot80)  -Ican’tdivide2by25so2plus the5leavesaremainder of 7.  - 80 +24 + 3=107.So,theansweris107witharemainder of 7.  Usinganequationthatrelates divisiontomultiplication, 25x *n*= 2682,astudent might estimatetheanswer tobeslightly largerthan100becauses/he recognizesthat25x 100= 2500.Example: 968 ÷ 21  •Using base ten models, a student can represent 962 and use the models to make an array with one dimension of 21. The student continues to make the array until no more groups of 21 can be made. Remainders are not part of the array.  Example: 9984 ÷ 64  •An area model for division is shown below. As the student uses the area model, s/he keeps track of how much of the 9984 is left to divide.    Technology Connections:  • Models created using IWB software (such as SMART Notebook)  •Array tools  •http://illuminations.nctm.org/ActivityDetail.aspx?ID=64 | **Vocabulary:**  **Prior**  •Commutative •Associative  **Explicit**  •Identity property of multiplication  •Zero property of multiplication  •Distributive property | MC Chapter 4 divide whole numbers |

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| 5.NBT.7. Add, subtract,multiply,anddivide decimalstohundredths,usingconcretemodels ordrawings andstrategiesbased onplace value,propertiesof operations,and/or the relationshipbetween additionandsubtraction; relatethestrategytoawrittenmethodand explainthereasoningused. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.7. Lookfor andmakeuse ofstructure. | This standardrequires students to extendthemodelsandstrategies they developedfor wholenumbers ingrades 1-4to decimalvalues.Beforestudents areaskedtogiveexactanswers,theyshouldestimateanswersbasedon their understandingof operationsandthevalueof thenumbers.  Examples:  •3.6+1.7  oAstudentmight estimatethesumtobelargerthan5because3.6is morethan3½ and1.7ismorethan1½.  •5.4–0.8  oAstudentmight estimatetheanswertobealittlemorethan4.4 becauseanumberlessthan1isbeingsubtracted.  •6x 2.4  oAstudentmight estimateananswerbetween 12 and18since6x 2is  12and6x 3is18. Anotherstudentmightgivean estimateof alittle  lessthan15 becauses/hefigures theanswer to be veryclose,but smallerthan6x 2½ andthinkof 2½groups of 6as12(2groupsof  6)+3 (½of agroupof 6).  Students shouldbeableto express thatwhentheyadddecimalstheyaddtenths totenths andhundredths tohundredths.So,whentheyareaddinginavertical format (numbers beneatheachother),itisimportant thatthey writenumbers  withthesameplacevaluebeneatheach other.This understandingcanbe reinforcedbyconnectingadditionof decimalstotheirunderstandingof addition of fractions.Adding fractions withdenominatorsof 10and100isastandardin fourth grade.  Example:4- 0.3  •3tenthssubtractedfrom4wholes.Thewholes mustbedividedinto tenths.  Theanswer is3and7/10or 3.7.  Example: An area model can be useful for illustrating products.    Students should be able to describe the partial products displayed by the area model. For example,  “3/10 times 4/10 is 12/100.  3/10 times 2 is 6/10 or 60/100.  1 group of 4/10 is 4/10 or 40/100.  1 group of 2 is 2.”  Example of division: finding the number in each group or share  •Students should be encouraged to apply a fair sharing model separating decimal values into equal parts such as  Example of division: find the number of groups  •Joe has 1.6 meters of rope. He has to cut pieces of rope that are 0.2 meters long. How many can he cut?  •To divide to find the number of groups, a student might  - draw a segment to represent 1.6 meters. In doing so, s/he would count in tenths to identify the 6 tenths, and be able identify the number of 2 tenths within the 6 tenths. The student can then extend the idea of counting by tenths to divide the one meter into tenths  and determine that there are 5 more groups of 2 tenths.    -count groups of 2 tenths without the use of models or diagrams.  Knowing that 1 can be thought of as 10/10, a student might think of  1.6 as 16 tenths. Counting 2 tenths, 4 tenths, 6 tenths, . . .16 tenths, a student can count 8 groups of 2 tenths.  -Use their understanding of multiplication and think, “8 groups of 2 is  16, so 8 groups of 2/10 is 16/10 or 1 6/10.”  Technology Connections: Create models using Interactive Whiteboard software  (such as SMART Notebook) | Vocabulary: | Looking ahead #1 back of book #2  make extra worksheets  MC 2-6 add & subtract  Find additional work |

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| 5.NF.1. Addandsubtractfractionswithunlike denominators (includingmixednumbers)by replacinggivenfractionswithequivalent fractionsinsuchawayastoproducean equivalent sumordifferenceof fractions with likedenominators.*For example,*  *2/3+5/4=*  *8/12+ 15/12 =23/12. (Ingeneral,a/b+c/d= (ad+ bc)/bd.)*  Connection:5.NF.2 | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.7. Lookfor andmakeuse ofstructure. | Students shouldapplytheir understanding of equivalentfractions developedin fourthgradeandtheir abilitytorewritefractions inanequivalentformtofind commondenominators.Theyshouldknowthatmultiplyingthedenominators will alwaysgiveacommondenominatorbutmaynotresultinthesmallest denominator.  Examples:  2 + 7 = 16 + 35 = 51  5 8 40 40 40  3 1 − 1 = 3 3 − 2 = 3 1  4 6 12 12 12 | **Vocabulary:**  **Prior**  •Equivalent fractions  •Mixed number  •Common denominator | MC Chapter 10  10-3 add  unlike fractions  10-4 subtract unlike fractions.  10-6  Estimate sums and differences |

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| 5.NF.2. Solvewordproblems involvingaddition andsubtractionof fractionsreferringtothe samewhole,includingcases of unlike denominators, e.g.,byusingvisualfraction modelsorequationstorepresenttheproblem. Usebenchmarkfractions andnumber senseof fractionstoestimatementallyandassess the reasonablenessof answers.*For example, recognizean incorrect result 2/5+1/2= 3/7,by observingthat3/7<1/2.*  Connections:5.NF.1 | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure.  5.MP.8. Lookfor andexpress regularityinrepeated reasoning. | Examples:  Jerrywasmakingtwodifferenttypes of cookies.Onerecipeneeded ¾cupof sugarandtheother neededcupof sugar.Howmuchsugar didheneedto makebothrecipes?  •Mentalestimation:  -AstudentmaysaythatJerryneeds morethan1cupof sugar but lessthan2cups.Anexplanationmaycomparebothfractions to ½ andstatethatbotharelargerthan½sothetotalmustbemorethan  1.In addition, bothfractions areslightlylessthan1 sothesum cannotbemorethan2.  •Areamodel  3 = 9 2 = 8  4 12 3 12  3 + 2 = 17 = 12 + 5 = 1 5  4 3 12 12 12 12  •Linear model    Solution:    Example: Using a bar diagram  •Sonia had 2 1/3 candy bars. She promised her brother that she would give him ½ of a candy bar. How much will she have left after she gives her brother the amount she promised?  Now students need to use equivalent fractions to find the total of 1 + ½ + 1/3. If Mary ran 3 miles every week for 4 weeks, she would reach her goal for the month. The first day of the first week she ran 1 ¾ miles. How many miles does she still need to run the first week?  -Using addition to find the answer:  1 ¾ + n = 3  - A student might add 1 ¼ to 1 ¾ to get to 3 miles. Then he or she would add 1/6 more. Thus 1 ¼ miles + 1/6 of a mile is what Mary needs to run during that week.  Example: Using an area model to subtract  •This model shows 1 ¾ subtracted from 3 1/6 leaving 1 + ¼ + 1/6 which a student can then change to 1 + 3/12 + 2/12 = 1 5/12.  3 1/6 and 1 ¾ can be expressed with a denominator of 12. Once this is done a student can complete the problem, 2 14/12 – 1 9/12 = 1 5/12.  •This diagram models a way to show how 3 1/6 and 1 ¾ can be expressed with a denominator of 12. Once this is accomplished, a student can complete the problem, 2 14/12 – 1 9/12 = 1 5/12.    Estimation skills include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations using various estimation strategies. Estimation strategies for calculations with fractions extend from students’ work with whole number operations and can be supported through the use of physical models.  Example:  •Elli drank 3/5 quart of milk and Javier drank 1/10 of a quart less than Ellie.  How much milk did they drink all together?  Solution:  •This is how much milk Javier drank  •Together they drank 1 1/10 quarts of milk  This solution is reasonable because Ellie drank more than ½ quart and Javier drank ½ quart so together they drank slightly more than one quart. | **Vocabulary:**  **Prior**  -estimate -benchmark -fractions | MC 10-9 problem solving |

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| 5.NF.3.Interpretafractionasdivisionof the numeratorbythedenominator(*a*/*b*=*a*÷*b*). Solvewordproblems involvingdivisionof whole numbersleadingtoanswers intheformof fractionsormixednumbers,e.g.,byusingvisualfractionmodelsorequations to represent theproblem.*For example,interpret3/4astheresultof dividing3by4,notingthat 3/4 multipliedby4equals 3, andthatwhen3 wholesaresharedequallyamong4peopleeachpersonhas ashareof size3/4.If9people want tosharea50-poundsack ofriceequallybyweight,howmanypoundsofriceshouldeachpersonget?Betweenwhattwowhole numbersdoesyour answerlie?* | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.7. Lookfor andmakeuse ofstructure. | Students areexpectedtodemonstratetheirunderstandingusingconcrete materials, drawingmodels, andexplainingtheir thinkingwhenworkingwith fractionsinmultiplecontexts.Theyread3/5as“threefifths” andafter many experienceswithsharingproblems, learnthat3/5canalsobeinterpretedas“3 divided by5.”  Examples:  •Tenteammembersaresharing3boxes of cookies.Howmuchof abox willeachstudentget?  •Whenworkingthis problemastudentshouldrecognizethatthe  3boxesarebeingdividedinto10groups,sos/heis seeingthe solutiontothefollowingequation,10x *n*= 3(10groups of some amount is3boxes) whichcanalsobewrittenasn=3÷ 10. Usingmodelsordiagram,theydivideeach boxinto10 groups, resultingineachteammembergetting 3/10of abox.  •Twoafterschoolclubs arehavingpizzaparties.For theMathClub,the teacherwillorder 3pizzas for every5students.For the studentcouncil, theteacherwillorder 5pizzas for every8students.Sinceyouarein  bothgroups,youneedto decidewhichpartytoattend. Howmuchpizza wouldyougetateachparty?Ifyouwantto havethemostpizza,which partyshouldyouattend?  •Thesix fifthgradeclassrooms haveatotalof 27boxes of pencils.How manyboxeswill eachclassroomhaveto use?  Students mayrecognizethis asawholenumberdivisionproblembutshould alsoexpress thisequalsharingproblemas 27/6.Theyexplainthateach classroomgets 27/6 boxesof pencils andcanfurther determinethateach classroomget  4 3/6 or4 1/2boxesof pencils. | **Vocabulary:**  **Prior**  •Dividend •Divisor •Quotient | MC Chapter 8  8-1 fractions & division  8-4 mixed numbers |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.NF.4. Applyandextendprevious understandingsof multiplicationto multiplya fractionorwholenumberbyafraction.  a.Interprettheproduct(*a*/*b*) ×*q*as*a*partsof apartitionof *q*into *b*equalparts; equivalently,astheresultofasequenceof operations*a*×*q*÷ *b*.*For example,usea visualfractionmodeltoshow*  *(2/3)* ×*4=8/3,andcreateastory context forthisequation. Dothesamewith(2/3)* × *(4/5) = 8/15.(Ingeneral, (a/b)* ×*(c/d) = ac/bd.)*  b.Findtheareaof arectanglewithfractional sidelengthsbytilingitwithunit squaresof theappropriateunitfraction sidelengths, andshowthattheareaisthesameas wouldbefoundbymultiplyingtheside lengths. Multiplyfractional sidelengthsto findareas of rectangles,andrepresent fractionproducts asrectangular areas. | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure.  5.MP.8. Lookfor andexpress regularityinrepeated reasoning. | Students areexpectedtomultiplyfractions includingproper fractions,improper fractions, andmixednumbers.Theymultiplyfractionsefficientlyandaccurately aswellassolveproblems inbothcontextualandnon-contextualsituations.  As theymultiplyfractions suchas3/5x 6,theycanthinkof theoperation in morethanoneway.  •3x (6÷ 5)or(3x 6/5)  •(3x 6)÷ 5or18÷ 5(18/5)  Students createastoryproblemfor 3/5x 6suchas,  •Isabel had6feetof wrappingpaper.Sheused3/5of thepaper towrap somepresents.Howmuchdoesshehaveleft?  •EverydayTim ran3/5ofmile.Howfar didherunafter 6days? (Interpretingthis as6x 3/5)  Example:  •Insolvingtheproblem 2/3 x 4/5,students useanareamodeltovisualizeit asa2by4arrayof smallrectangles eachofwhichhas sidelengths1/3 and1/5.Theyreasonthat1/3x 1/5= 1/(3x 5) bycountingsquaresin theentire rectangle,sotheareaof theshadedareais (2x 4)x 1/(3x 5) =    Theycanexplainthattheproduct islessthan becausethey arefindingof 4/5.Theycanfurther estimatethatthe  answermustbe between 2/5 and 4/5 becauseofismorethanofandlessthanone groupof 4/5.    Theareamodelandtheline segments showthattheareaisthesamequantityas theproductof thesidelengths.  Examples:  •Rectangle with dimensions of 2 and 3 showing that 2 x 3 = 6.    •Larry knows that x  is . To prove this he makes the following array.    •Rectangle with dimensions of 2 and  showing that 2 x 2/3 = 4/3    groups of :    Technology Connections:  •Create story problems for peers to solve using digital tools.  •Use a tool such as Jing to digitally communicate story problems | **Vocabulary:**  **Prior**  •Area  **Explicit**  •Tiling •Unit fractions | MC 9-3 equivalent  Fractions  MC 8-1  MC 8-4  b. MC 14-3,14-8 areas of a rectangle |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.NF.5.Interpretmultiplicationasscaling(resizing),by:  a.Comparingthesizeof aproducttothesize ofonefactor onthebasisofthesizeof the otherfactor,withoutperformingthe indicatedmultiplication.  b.Explainingwhymultiplying agivennumber byafractiongreater than1 results ina product greater thanthegivennumber (recognizingmultiplication bywhole numbersgreater than1asafamiliar case); explainingwhymultiplying agivennumber byafractionlessthan1results ina  productsmaller thanthegivennumber; andrelatingtheprincipleof fraction equivalence *a/b*=(*n*×*a*)/(*n*×*b*)totheeffect of multiplying *a*/*b*by1. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Examples:  •islessthan7because7ismultiplied byafactor lessthan1sotheproductmustbelessthan7.  •x 8mustbemorethan8because2groups of 8is16andis almost 3groups of 8. Sotheanswermustbecloseto, but lessthan24.  •3/4=5/5 x 3/4becausemultiplying  3by5 isthesameas  4 5    multiplyingby1. | **Vocabulary:**  **Prior**  •factor  •product  **Explicit**  •Scale/s calling | MC 15-1& 15-2  Extra work  Recipes and scales worksheets  5.a. mental math |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.NF.6. Solvereal worldproblems involving multiplicationof fractions andmixednumbers, e.g., byusingvisualfractionmodelsor equationstorepresenttheproblem. | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure.  5.MP.8. Lookfor andexpress regularityinrepeated reasoning. | Examples:  •Evanbought6roses for hismother. of them werered.Howmanyred roseswerethere?  •Usingavisual,a studentdivides the6rosesinto3groups and countshowmanyarein2ofthe3groups.  •Astudentcanusean equation tosolve. redroses  •MaryandJoedeterminedthatthedimensions of their schoolflag neededtobeft.by2ft.What will be theareaof theschoolflag?  •Astudentcandrawan arraytofindthis productandcanalsouse his orher understandingofdecomposingnumbers toexplainthe multiplication. Thinkingaheadastudentmaydecidetomultiplyby insteadof 2.  The explanation may include the following:  •First, I am going to multiply 2 1/4 by 1 and then by 1/3.  •When I multiply 2 1/4 by 1, it equals 21/4.  •Now I have to multiply 2 1/4 by 1/3.  • 1/3 times 2 is 2/3 .  •1/3 times 1/4 is 1/12 .  •So the answer is 2 1/4 + 2/3 + 1/12 or 2 3/12 + 8/12 + 1/12 = 2 12/12 = 3 | Vocabulary: | Chapter 10 story problems |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.NF.7. Apply and extend previous understandings of division to divide unitfractions by whole numbers and whole numbers by unit fractions. (Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.)  a.Interpret division of a unit fraction by a non-zero whole number, and compute  such quotients. For example, create astory context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.  b.Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for  4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationshipbetween multiplication and division to  explain that 4÷(1/5) = 20 because 20 ×(1/5) = 4.  c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins? | 5.MP.1. Make sense of problems and persevere in solving them.  5.MP.2. Reason abstractly and quantitatively.  5.MP.3. Construct viable arguments and critique the reasoning of others.  5.MP.4. Model with mathematics.  5.MP.5. Use appropriate tools strategically.  5.MP.6. Attend to precision.  5.MP.7. Look for and make use of structure.  5.MP.8. Look for and express regularity in repeated reasoning. | In fifth grade, students experience division problems with whole number divisors and unit fraction dividends (fractions with a numerator of 1) or with unit fraction divisors and whole number dividends. Students extend their understanding of the meaning of fractions, how many unit fractions are in a whole, and their understanding of multiplication and division as involving equal groups or shares and the number of objects in each group/share. In sixth grade, they will use this foundational understanding to divide into and by more complex fractions and develop abstract methods of dividing by fractions.  Division: Knowing the number of groups/shares and finding how many/much in each group/share  •Four students sitting at a table were given 1/3 of a pan of brownies to share. How much of a pan will each student get if they share the pan of brownies equally?  The diagram shows the 1/3 pan divided into 4 equal shares with each share equaling 1/12 of the pan.   |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | |  |  |  |   Examples:  Knowing how many in each group/share and finding how many groups/shares  •Angelo has 4 lbs of peanuts. He wants to give each of his friends 1/5 lb.  How many friends can receive 1/5 lb of peanuts?  A diagram for 4 ÷ 1/5 is shown below. Students explain that since there are five fifths in one whole, there must be 20 fifths in 4 lbs.  1 lb. of peanuts  1/5 lb   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |   •How much rice will each person get if 3 people share 1/2 lb of rice equally?    -A student may think or draw ½ and cut it into 3 equal groups then determine that each of those part is 1/6.  -A student may think of ½ as equivalent to 3/6. 3/6 divided by 3 is 1/6. | Vocabulary: | MC 8-1  MC 8-2  MC 8-3  a.b.&c. find extra work |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.MD.1.Convertamongdifferent-sized standardmeasurementunitswithinagiven measurement system(e.g., convert5cmto  0.05m),andusetheseconversions insolving multi-step, real worldproblems. | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision. | Infifthgrade, students buildon theirprior knowledgeof relatedmeasurement unitstodetermineequivalentmeasurements.Prior tomakingactual conversions, theyexaminetheunits tobeconverted,determineiftheconverted amount willbemoreor lessunitsthantheoriginal unit,andexplaintheir reasoning. Theyuseseveralstrategies toconvertmeasurements. | **Vocabulary:**  **Prior**  •Metric system  •Customary system  **Explicit**  •Convert •Metric prefixes | MC Chapter 12 |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.MD.2.Makealineplotto displayadatasetof measurementsinfractions of aunit(1/2,1/4,  1/8).Useoperationsonfractions for thisgrade tosolveproblems involvinginformation  presentedinlineplots.*Forexample,given*  *differentmeasurementsof liquidinidentical beakers, findtheamountof liquideachbeaker wouldcontainifthetotalamountinallthe beakerswereredistributedequally.* | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Tenbeakers,measuredinliters, arefilledwithaliquid.  Theline plotaboveshowstheamountof liquidinlitersin10beakers.Iftheliquid is redistributedequally,howmuchliquidwouldeachbeaker have?(This amount isthemean.)  Students applytheirunderstandingof operations withfractions.Theyuseeither additionand/or multiplicationto determinethetotal number of litersinthe beakers. Thenthesumof thelitersis sharedevenlyamongthetenbeakers. | **Vocabulary:**  **Prior**  •Line plot •Data  **Introductory**  •Mean | MC 7-3 line plot |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.MD.3.Recognize volumeasan attribute of solid figures andunderstandconceptsof volumemeasurement.  a. Acubewithsidelength1unit,calleda“unit cube,”is saidtohave“onecubic unit” of volume, andcanbe usedtomeasure volume.  b. Asolidfigurewhichcanbepackedwithout gapsoroverlapsusing*n*unitcubes is said tohaveavolumeof *n*cubicunits.  Connections:5.NST.2 | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Students’ prior experienceswith volumewererestrictedto liquidvolume. As studentsdeveloptheir understandingvolumetheyunderstandthata1-unitby1- unitby1-unitcubeisthestandardunitfor measuring volume.This cubehas a lengthof 1unit,awidthof 1unitandaheightof 1unitand is calledacubic unit. This cubic unit iswrittenwithanexponentof 3(e.g.,in3, m3).Studentsconnectthisnotationtotheir understandingof powers of 10 inourplacevaluesystem.  Modelsof cubicinches, centimeters,cubic feet,etc arehelpful indevelopingan imageof acubic unit.Students estimatehowmanycubicyardswouldbe neededtofilltheclassroomorhowmanycubic centimeterswouldbe needed to fillapencilbox. | **Vocabulary:**  **Prior**  •Volume  •Attribute  •Solid figure  •3-dimensional  **Explicit**  •Cubic unit | MC Chapter 14, 14-6 for all  Need extra work |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.MD.4.Measure volumes bycountingunit cubes, usingcubic cm,cubic in, cubic ft,and improvisedunits.  Connections:5.MD.3 | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision. | Students understandthatsamesizedcubic units areusedtomeasurevolume. Theyselectappropriateunits tomeasurevolume.For example,theymakea distinctionbetweenwhichunits aremoreappropriatefor measuringthevolume ofagymandthevolumeofabox of books.Theycanalsoimprovise acubic unit usinganyunitasalength(e.g.,thelengthof theirpencil). Students canapply theseideasbyfillingcontainers with cubic units (woodencubes) tofindthe volume. Theymayalsousedrawings orinteractivecomputer softwareto simulatethesamefillingprocess.  TechnologyConnections:  <http://illuminations.nctm.org/ActivityDetail.aspx?ID=6> | Vocabulary: | MC Chapter 14 |

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| ***Standards*** | ***Mathematical Practices*** | ***Unpacking***  What do your students need to be able to DO? | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.MD.5.Relatevolumetotheoperationsof multiplicationandadditionandsolvereal world andmathematicalproblems involvingvolume.  a. Findthevolumeof aright rectangularprism withwhole-numbersidelengthsbypacking itwithunitcubes,andshowthatthevolume isthesameaswouldbefoundby multiplyingtheedgelengths, equivalently  bymultiplyingtheheightbytheareaof the base. Representthreefold whole-number  products asvolumes,e.g.,torepresentthe associativepropertyofmultiplication.  b. Applytheformulas *V*=l×*w*×*h*and*V*= *b*× *h*for rectangular prisms tofindvolumes of right rectangularprisms withwhole-number edgelengthsinthecontextof solvingreal worldandmathematicalproblems.  c. Recognize volumeasadditive.Find volumesof solidfigures composedof two non-overlappingrightrectangular prisms by addingthe volumes of thenon-overlapping parts, applyingthis techniqueto solvereal worldproblems. | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure.  5.MP.8. Lookfor andexpress regularityinrepeated reasoning. | Students needmultipleopportunities tomeasurevolumebyfillingrectangular prismswithcubes andlookingat therelationshipbetweenthetotal volumeand theareaof thebase.Theyderivethevolumeformula(volumeequalstheareaof thebasetimes theheight)andexplorehowthis ideawouldapplytoother prisms. Students usetheassociativepropertyof multiplicationand decompositionof numbersusingfactors to investigaterectangular prisms witha givennumberof cubic units.  Examples:  •Whengiven24cubes,studentsmakeasmanyrectangular prisms as possiblewithavolumeof 24cubicunits.Students buildtheprismsand recordpossible dimensions.   |  |  |  | | --- | --- | --- | | Length | Width | Height | | 1 | 2 | 12 | | 2 | 2 | 6 | | 4 | 2 | 3 | | 8 | 3 | 1 |   -Students determinethevolumeof concreteneededtobuildthesteps in thediagrambelow. (refer to CCSS Toolbox at SDE website).  -A homeowner is building a swimming pool and needs to calculate the volume of water needed to fill the pool. The design of the pool is shown in the illustration below. (refer to CCSS Toolbox at SDE website). | **Vocabulary:**  **Explicit**  •Right •Rectangular •Prism | MC 14-6 |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.G.1.Useapair of perpendicularnumber lines, calledaxes,todefinea coordinatesystem,with theintersectionof the lines(theorigin) arranged tocoincidewiththe0on eachlineandagiven point intheplanelocatedbyusinganordered pairof numbers,calledits coordinates. Understandthatthefirstnumber indicateshow fartotravelfromtheorigininthedirectionofoneaxis,andthesecondnumber indicateshow fartotravel inthedirectionof thesecondaxis, withtheconventionthatthenamesof thetwo axesandthecoordinates correspond(e.g.,*x*- axisand*x*-coordinate,*y*-axis and*y*-coordinate). | 5.MP.4. Modelwith mathematics.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Examples:  •Students canuseaclassroomsizecoordinategridto physicallylocate thecoordinatepoint(5,3) bystartingattheoriginpoint (0,0),walking5 unitsalongthex axis tofindthefirstnumber inthe pair (5),andthen walkingup3units for thesecondnumber inthepair (3).Theordered pairnames apointon thegrid.  •Graphandlabelthepointsbelowonacoordinateplane.  A(0,0)  B(2,-4) o  C(5,5)  D(-4,1)  E(2.5,-6)  F(-3,-2) | **Vocabulary:**  **Prior**  •Perpendicular •Intersection  **Explicit**  •Axis •Origin •Quadrant | MC 6-4 ordered pairs  Need additional work |

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| ***Standards*** | ***Mathematical Practices*** | ***Unpacking***  What do your students need to be able to DO? | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.G.2.Representreal worldandmathematical problemsbygraphingpoints inthefirst quadrantof thecoordinateplane,and interpret coordinatevaluesof pointsinthecontextof the situation. | 5.MP.1. Makesenseof problemsandperseverein solvingthem.  5.MP.2. Reasonabstractlyand quantitatively.  5.MP.4. Modelwith mathematics.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Examples:  •Sarahassaved$20.Sheearns $8for each hoursheworks.  -IfSarasaves allof hermoney, howmuchwillshehaveafter working3hours?5hours?10hours?  -Createagraphthatshowstherelationshipbetween thehours  Saraworkedandtheamountof moneyshehas saved.  -Whatotherinformationdo youknowfromanalyzingthegraph?  •Usethegraphbelowto determinehowmuchmoneyJackmakesafter workingexactly9hours. | Vocabulary: | Additional work |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.G.3.Understandthatattributesbelongingto a categoryof two-dimensionalfigures alsobelong toallsubcategoriesof thatcategory.*For example,allrectangles havefourrightangles andsquares arerectangles,soallsquares have four rightangles.* | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Geometricpropertiesincludepropertiesof sides (parallel,perpendicular, congruent), properties of angles(type,measurement,congruent),andproperties ofsymmetry(pointandline).  Example:  •Iftheoppositesides on aparallelogramareparallelandcongruent,then rectanglesareparallelograms  Asampleof questionsthatmightbeposedtostudentsinclude:  •Aparallelogramhas4sides withbothsets of opposite sides parallel.  Whattypes of quadrilaterals areparallelograms?  •Regularpolygons haveall of theirsides andangles congruent.Nameor drawsomeregularpolygons.  •Allrectangles have4rightangles.Squares have4rightangles sothey arealso rectangles.Trueor False?  •Atrapezoidhas 2sides parallelsoit mustbeaparallelogram.Trueor  False?  TechnologyConnections:  <http://illuminations.nctm.org/ActivityDetail.aspx?ID=70> | Vocabulary: |  |

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| ***Standards***  What do your students need to be able to DO? | ***Mathematical Practices*** | ***Unpacking*** | ***Essential Vocabulary*** | ***Materials / Resources***  Alignment with textbooks, and any other resources available. |
| 5.G.4.Classifytwo-dimensionalfiguresina hierarchybasedonproperties. | 5.MP.2. Reasonabstractlyand quantitatively.  5.MP.3. Constructviable argumentsandcritiquethe reasoningof others.  5.MP.5. Useappropriatetools strategically.  5.MP.6. Attendtoprecision.  5.MP.7. Lookfor andmakeuse ofstructure. | Properties of figuremayinclude:  •Properties of sides—parallel,perpendicular,congruent,numberof sides  •Properties of angles—types of angles,congruent  Examples:  •Arighttriangle canbeboth scaleneand isosceles, butnotequilateral.  •Ascalenetriangle canberight,acuteandobtuse.  Triangles canbeclassifiedby:  •Angles  Right:Thetrianglehas oneanglethatmeasures90º.  Acute:Thetrianglehas exactlythreeanglesthatmeasurebetween 0ºand90º.  Obtuse:Thetrianglehasexactlyoneangle thatmeasures greaterthan90ºandlessthan180º.  •Sides  Equilateral:Allsides of thetrianglearethesamelength.  Isosceles: Atleast two sides of thetrianglearethesamelength.  Scalene:Nosides of thetrianglearethesamelength. | Vocabulary: |  |

Idaho Common Core State Standards Mathematics

Grade Level Articulation

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| **Standards for Mathematical Practice** | | |
| ***Standards*** |  | ***Explanations and Examples*** |
| *Students are expected to:* | Mathematical Practices are listed throughout the grade level document in the 2nd column to reflect the need to connect the mathematical practices to mathematical content in instruction. |  |
| 5.MP.1. Make sense of problems and persevere in  solving them. |  | Students solve problems by applying their understanding of operations with whole numbers, decimals, and fractions including mixed numbers. They solve problems related to volume and  measurement conversions. Students seek the meaning of a problem and look for efficient ways to represent and solve it. They may check their thinking by asking themselves, “What is the most efficient way to solve the problem?”, “Does this make sense?”, and “Can I solve the problem in a different way?”. |
| 5.MP.2. Reason abstractly  and quantitatively. |  | Fifth graders should recognize that a number represents a specific quantity. They connect  quantities to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions that record calculations with numbers and represent or round numbers using place value concepts. |
| 5.MP.3. Construct viable  arguments and critique the reasoning of others. |  | In fifth grade, students may construct arguments using concrete referents, such as objects,  pictures, and drawings. They explain calculations based upon models and properties of operations and rules that generate patterns. They demonstrate and explain the relationship between volume and multiplication. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking. |
| 5.MP.4. Model with  mathematics. |  | Students experiment with representing problem situations in multiple ways including numbers,  words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Fifth graders should evaluate their results in the context of the situation and whether the results make sense. They also evaluate the utility of models to determine which models are most useful and efficient to solve problems. |
| 5.MP.5. Use appropriate  tools strategically. |  | Fifth graders consider the available tools (including estimation) when solving a mathematical  problem and decide when certain tools might be helpful. For instance, they may use unit cubes  to fill a rectangular prism and then use a ruler to measure the dimensions. They use graph paper to accurately create graphs and solve problems or make predictions from real world data. |

Explanations and Examples Grade 5

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Idaho Common Core State Standards Mathematics

Grade Level Articulation

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| **Standards for Mathematical Practice** | | |
| ***Standards*** |  | ***Explanations and Examples*** |
| *Students are expected to:* | Mathematical Practices are  listed throughout the grade level document in the 2nd column to reflect the need to connect the mathematical practices to mathematical content in instruction. |  |
| 5.MP.6. Attend to precision. |  | Students continue to refine their mathematical communication skills by using clear and precise language in their discussions with others and in their own reasoning. Students use appropriate  terminology when referring to expressions, fractions, geometric figures, and coordinate grids. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, when figuring out the volume of a rectangular prism they record their answers in cubic units. |
| 5.MP.7. Look for and make  use of structure. |  | In fifth grade, students look closely to discover a pattern or structure. For instance, students use  properties of operations as strategies to add, subtract, multiply and divide with whole numbers, fractions, and decimals. They examine numerical patterns and relate them to a rule or a graphical representation. |
| 5.MP.8. Look for and  express regularity in repeated reasoning. |  | Fifth graders use repeated reasoning to understand algorithms and make generalizations about  patterns. Students connect place value and their prior work with operations to understand algorithms to fluently multiply multi-digit numbers and perform all operations with decimals to hundredths. Students explore operations with fractions with visual models and begin to formulate generalizations. |