



Northwest Evaluation Association

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Climbing the Data Ladder

Web-Based MAP

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Setting the Stage



- Welcome and Introductions
- Structure for the Day
- Agenda

Session Topics



- Differentiating with Measures of Academic Progress[®] (MAP[®]) Data
- The Lexile[®] Framework for Reading
- *DesCartes: A Continuum of Learning[®]*
- *Primary Grades Instructional Data*
- Grouping
- Differentiation Strategies
- Lesson Planning
- Managing the Differentiated Classroom
- Planning Forward



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Instructional Ladders

Setting the Stage



- Welcome/Introductions
- Structure for the Day
- Agenda

Session Topics



- Creating an Instructional Ladder
 - ▶ Use standards with *DesCartes: A Continuum of Learning*[®] or *Primary Grades Instructional Data*
 - ▶ Design instruction to meet learners' diverse needs
 - ▶ Identify and access resources for diverse instructional needs



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Differentiated Instruction

Setting the Stage



- Welcome/Introductions
- Structure for the Day
- Agenda

Session Topics



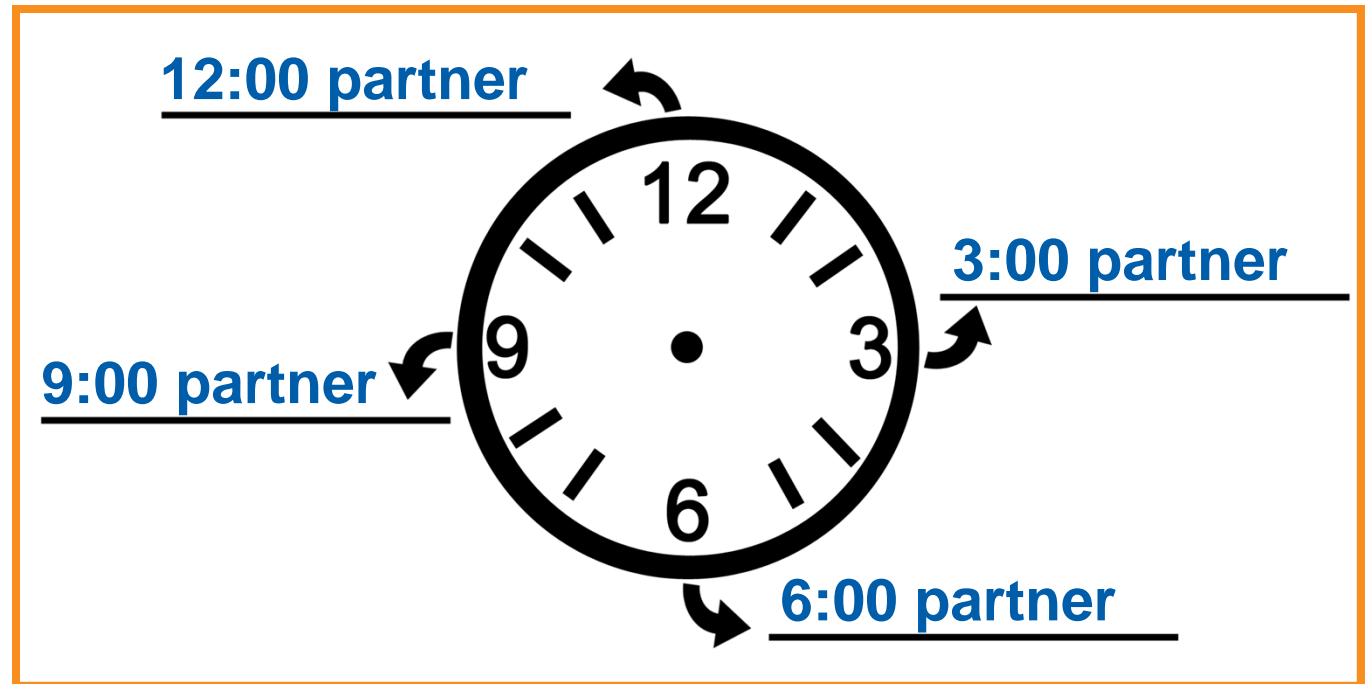
- Differentiating Instruction
 - ▶ Benefits of differentiation
 - ▶ Differentiating by content, process, and product
 - ▶ Instructional strategies
 - ▶ Managing a differentiated classroom

Planning Forward



| Planning Forward | | | |
|---|---|---|--|
| What will you do with the information you learned today? | How will you approach implementation? | Who will be involved? | When will you try it? |
| <p><i>Example: I would like to use MAP data to motivate my students to improve.</i></p> | <p><i>I will implement goal setting with my students.</i></p> | <p><i>My grade level partners, students, and parents.</i></p> | <p><i>Between now and spring assessment.</i></p> |
| | | | |

Appointment Clock



Self-Assessment



- I am aware
- I understand
- I can apply
- I can teach others

What is Differentiation?



“Differentiation is classroom practice that looks eyeball-to-eyeball with the reality that kids differ, and the most effective teachers do whatever it takes to hook the whole range of kids on learning.”

-Carol Ann Tomlinson

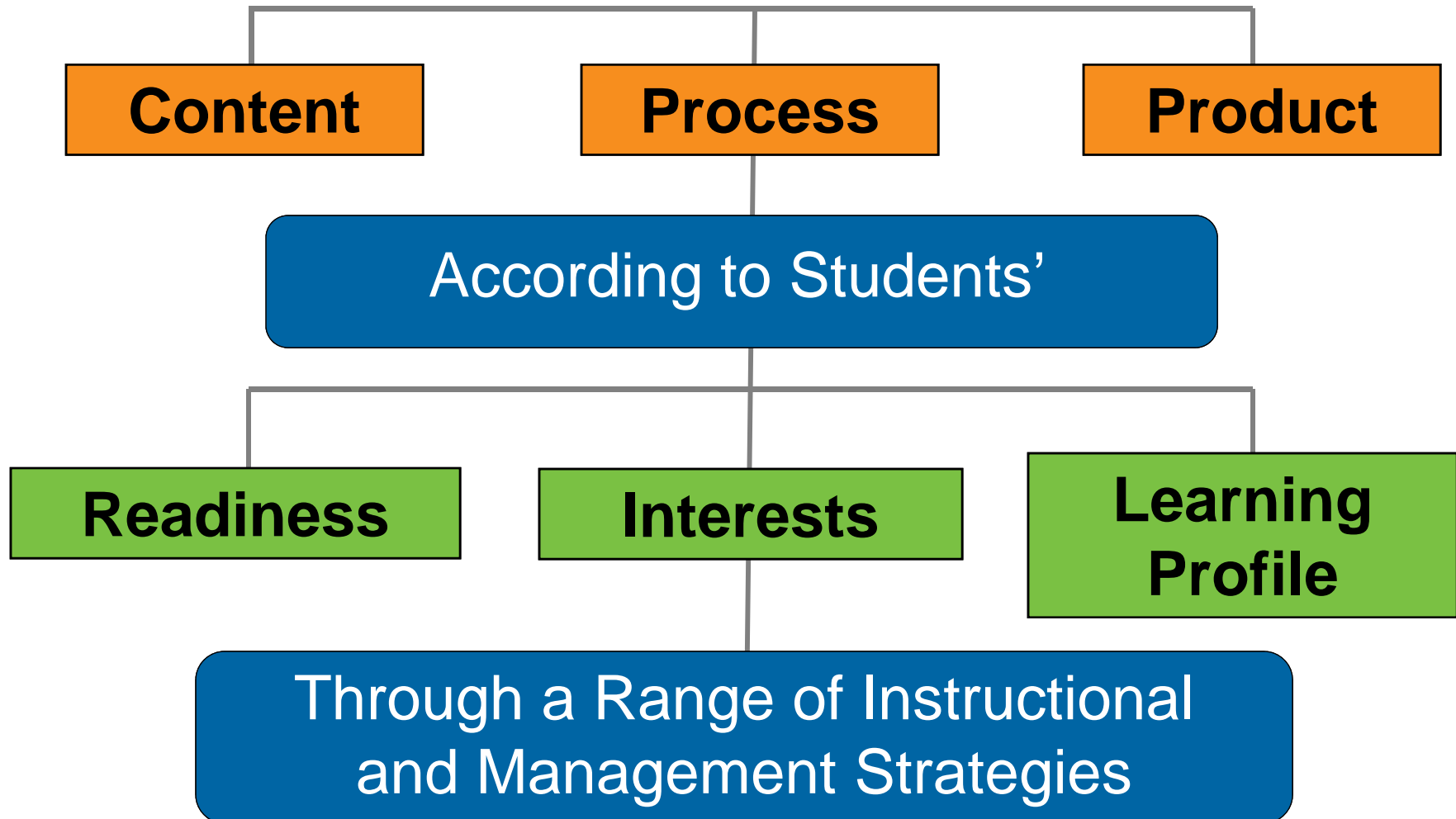
Zone of Proximal Development



Match between a learner's level of prior knowledge and the introduction of new information to produce maximum growth.

-Lev Vygotsky's Zone of Proximal Development Theory

Teachers Can Differentiate



Differentiating Content



- Content is what students learn
- Reflects state and/or national standards (usually)
- Includes curriculum facts, concepts, attitudes, skills, and materials related to the subject
- Gives students choices to add depth to learning
- Gives students additional resources that match their levels of understanding

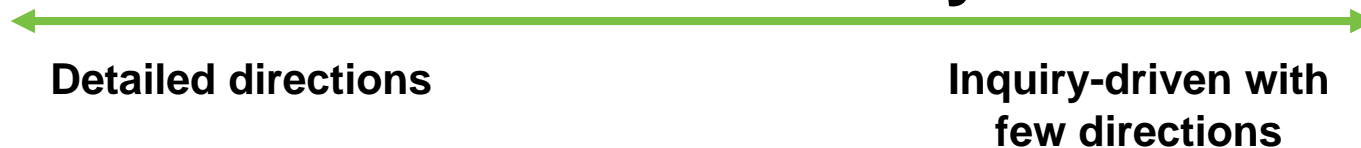
Process



- Process is how students learn: How they make sense of, understand, and own key facts and skills
- Reflects students' learning styles and preferences
- Varies the learning process depending on how students learn
- Synonymous with activity

Process Differentiation

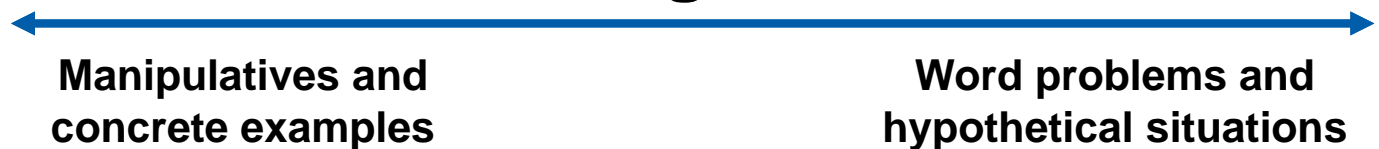
Structure Activity



Discussion Format



Learning Materials



Product



- Tends to be tangible (i.e., reports, speeches, tests, or skits)
- Draws on knowledge and skill achieved over time (usually)
- Requires students to apply or extend understanding and skill (usually)
- Reflects student understanding
- Provides challenge, variety, and choice

Virtual Observation



- Using Lexile[®] Measures to Differentiate
 - ▶ How can using Lexile[®] data support better learning for all students?



Lexile[®] Resources



■ Tiered Reading and Lexile[®] Book Options

Tiered Reading Resources

Subject: Social Studies
State Standard: Students analyze the multiple causes, key events, and complex consequences of the Civil War
Essential Question: What impact has the Civil War had on our society today?
DesCartes Skills: Cause/Effect and Locating Information

| Books: Nonfiction | | Lexile [®] |
|---|---------------------|---------------------|
| <i>Kids During the American Civil War</i> | Lisa A. Wroble | 630L |
| <i>Abraham Lincoln</i> | George Sullivan | 700L |
| <i>War, Terrible War 1860-1865</i> | Joy Hakim | 820L |
| <i>Commander in Chief Abraham Lincoln and the Civil War</i> | Albert Marrin | 890L |
| <i>Sojourner Truth and the Struggle for Freedom</i> | Edward B. Clafin | 900L |
| <i>The Civil War and Its Aftermath: 1863-1890</i> | Grolier Educational | 960L |
| <i>Fields of Fury: The American Civil War</i> | James M. McPherson | IG970L |
| <i>When This Cruel War is Over: The Civil War Home Front</i> | Duane Damon | 1000L |
| <i>The Boys' War</i> | Jim Murphy | 1060L |
| <i>A House Divided: The Lives of Ulysses S. Grant and Robert E. Lee</i> | Jules Archer | 1090L |
| <i>Civil War</i> | Martin W. Sandler | 1140L |

Lexile[®] Resources, continued



- Online Booklist Resources:

[MetaMetrics[®] Lexile[®] Booklist](#)

[Barnes & Noble[®] Lexile[®] Reading Level Wizard](#)

[Scholastic[®] Book Wizard[®]](#)

Instructional Ladders



- Data-informed instructional design
- Extended scaffolding
- Appropriate entry points

Virtual Observation



- Laddered Instruction
 - ▶ Content focus
 - ▶ Resources for decision-making
 - ▶ Using *DesCartes*



NWEA Goal Structures

Accessing Goal Structures For Web-Based MAP® Users

How would I access a document that would show the alignment of goal performance areas assessed with the MAP® assessment, to Common Core Standards or my state's standards?

1. From MARC> View Reports and Instructional Resources> MAP Reports, scroll down to view the **Information Center** box.
2. Choose **State Linking Studies**. (Figure 1)
3. **Common Core** resources are accessed from a link in the middle of the page. State resources should be accessed using the State drop down box. (Figure 2)

- a) If you are using the Common Core-aligned Assessment, download the MAP or MPG Goal Structure Chart. (Figure 3)
- b) If you are using any state-aligned MAP assessment, click the title of your chart under the Goal Structures heading. (Figure 4)



Information Center

Resources and Guides

- [MAP Reports and Instructional Resources Guide](#)
- [Reports Reference](#)

Examples of each MAP report with explanations of its components.

- [Student Progress Report Quick Reference](#)

Sample report with explanatory notes for parents and teachers.

Research

- [Norms Study Resources](#)

A link to resources to help you use and interpret NWEA RIT Scale Norms data. Includes 2011 Norms Study documentation, Student Growth Calculator, and 2012 School Norms User's Guide and Calculator.

- [College Readiness Linking Study](#)

Examines predictive relationship between RIT scores and college readiness benchmarks.

- [State Linking Studies](#)

Links RIT scale to proficiency levels from state assessments.

Figure 1

Common Core resources can be accessed [here](#).

State:

Figure 2

MAP Goal Structure Chart - Get a detailed view of the content **breakdown by goal** and sub-goals in Mathematics, Reading and Language MAP tests. [Download pdf](#)

MPG Goal Structure Chart - Get a detailed view of the content in each goal and sub-goal **contained** within Mathematics and Reading MAP for Primary Grades tests. [Download pdf](#)

Figure 3

Goal Structures

| Date | Title |
|-----------|---|
| 7/5/2012 | New York Math, Reading, Language, Common Core Goal Structure Chart V5 |
| 7/5/2012 | New York Science Goal Structure Chart V2 |
| 7/5/2012 | New York MPG Common Core Goal Structure Chart V1 |
| 6/22/2011 | New York Math, Reading, Language Goal Structure Chart V4 |

Figure 4

NOTE: For a helpful resource showing the relationship between your Goal Structure Chart and the *DesCartes Continuum* and/or *Primary Grades Instructional Data*, see the *Annotated Goal Structures Chart*.

Annotated Goal Structures Chart

| 1 | Standards | Descartes / PGID | MAP® Reports |
|--|-----------|---|----------------------|
| Reading Goal Structure | | Reading DesCartes | Reading Report Names |
| Informational Text | | Informational Text | Informational Text |
| Key ideas and details: In informational texts, understand explicitly stated ideas, cite textual evidence, make inferences, support conclusions; determine central ideas or themes, retitle and summarize with key supporting details and ideas; compare and contrast important points and main ideas within and across texts; compare and contrast different authors' presentations of similar ideas; analyze development and interaction of individuals, events and ideas. | | Informational Text: Key Ideas and Details | |
| Craft and Structure: In informational text, analyze how word choice (e.g., the language of a court opinion vs. that of a newspaper, analogies, allusions) affects the meaning and tone of a text; analyze how authors use and refine the meaning of key terms; analyze and evaluate text structure, including the relationship of parts to each other and to the whole, the development and refinement of ideas or claims, and the effectiveness of a given structure for an exposition or argument. | | Informational Text: Craft and Structure | |

1. Subject areas: are Reading, Mathematics or Science.
2. Goal performance areas: are aligned with state or Common Core Standards.
- 3 and 4. Sub-goals: are determined from sub-domains in the state or Common Core Standards, listed vertically down the page in DesCartes, and divided by narrow gray bars for each new sub-goal area.
5. MAP report headings: This is the language you will see on MAP reports. (*DesCartes* and *PGID* are the only places you will see the sub-goals outlined.)

DesCartes: A Continuum of Learning®

Reading Goal: Informational Text

RIT Score Range: 161 - 170

| Skills and concepts to Enhance (73% Probability) | Skills and Concepts to Develop (16% Probability) | Skills and Concepts to Introduce (22% Probability) |
|---|--|--|
| <p>161 - 170</p> <p>Informational Text: Key Ideas and Details</p> <ul style="list-style-type: none"> • Locates information in short passages (1 to 3 sentences) of informational text containing simple sentence construction • Locates directions in informational text • Explains why a specific effect (term not used) occurred using information supplied in a short informational sentence • Explains why a specific effect (term not used) occurred using information supplied in a short (1-5 sentences) informational passage describing events • Makes predictions (term not used) about the content of books based on their titles | <p>171 - 180</p> <p>Informational Text: Key Ideas and Details</p> <ul style="list-style-type: none"> • Locates information in short passages (1 to 3 sentences) of informational text containing simple sentence construction • Locates information in passages (3 to 10 sentences) of informational text containing 1 to 8 compound or complex sentences or sentence construction containing prepositions, compound subjects, or objects • Paraphrases information in informational text • Identifies the main idea of informational text (3 to 6 simple sentences) • Analyzes short passages (1-5 sentences) of informational text describing events to identify main idea (term not used) expressed as a short phrase • Analyzes informational text to identify a title representing the main idea • Follows simple directions in informational text • Explains why a specific effect (term not used) occurred using information supplied in a short informational sentence • Explains why a specific effect (term not used) occurred using information supplied in a short (1-5 sentences) informational passage describing events • Makes inferences from short (3-5 simple sentences) informational texts describing real-life, age-appropriate situations | <p>181 - 190</p> <p>Informational Text: Craft and Structure</p> <ul style="list-style-type: none"> • Locates information in text based on classification indicator (term not used) • Identifies the function of a dictionary • Identifies examples of thank you notes |

DesCartes Continuum: Common Core, Reading, Informational Text, 161-170



DesCartes is a Continuum of Learning

Subject: Math

Goal Strand: M

Below 16

Length, Weight, Mass, and Capacity

• Compares objects (taller, narrower)
• Compares objects (taller, shorter)

Time, Temperature, and Money

• Identifies time of day (e.g., morning, afternoon)

Angles, Perimeter, and Circumference

Area and Volume

Appropriate Units, Tools, Precision Strategies

New Vocabulary: none

New Signs and Symbols: used with time

| 241-250 | Above 250 |
|--|---|
| Length, Weight, Mass, and Capacity | Length, Weight, Mass, and Capacity |
| | |
| Time, Temperature, and Money | Time, Temperature, and Money |
| | |
| Angles, Perimeter, and Circumference | Angles, Perimeter, and Circumference |
| <ul style="list-style-type: none"> Determines the perimeter of a figure when plotting ordered pairs* | |
| Area and Volume | Area and Volume |
| <ul style="list-style-type: none"> Determines the area of a triangle without the formula Describes the change in area of a rectangle when dimensions of an object are altered* Determines the area of a parallelogram, given a labeled diagram* Determines the area of irregular shapes (customary units)* Calculates the area of irregular shapes (metric units)* Determines the surface area of rectangular solids | <ul style="list-style-type: none"> Determines the area of a figure when plotting ordered pairs without a grid* Determines the length of the side of a square, given the area* Determines the area of a parallelogram, given a labeled diagram* Calculate the height of a trapezoid, given the area, without the formula given (metric)* Solves problems comparing area to perimeter (analysis) |
| Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies |
| <ul style="list-style-type: none"> Uses significant digits appropriately as they relate to precision* | <ul style="list-style-type: none"> Uses fractional units appropriately as they relate to precision* |

New Vocabulary: none used

New Vocabulary: none

| 231-240 |
|--|
| Length, Weight, Mass, and Capacity |
| <ul style="list-style-type: none"> Measures length to the nearest millimeter Converts between feet, yards, and miles* Computes basic subtraction and multiplication with units of length Converts between millimeters, centimeters, meters, and kilometers Converts between grams and kilograms* Computes basic operations with units of capacity Converts within the metric system |
| |
| Time, Temperature, and Money |
| |
| Angles, Perimeter, and Circumference |
| <ul style="list-style-type: none"> Identifies the formula for perimeter with a variable |
| |
| Area and Volume |
| <ul style="list-style-type: none"> Compares area of numerous triangles* Determines the area of a triangle drawn on a grid* Determines the area of a triangle, given the formula Calculates the area of a rectangle, given labeled sides (customary units) Determines the length or width of a rectangle, given the area (metric units)* Determines area, length, or width, given the formula with variables* Describes the change in area of a rectangle when dimensions of an object are altered* Calculates the base or height of a parallelogram, given |

| Above 250 |
|---|
| Length, Weight, Mass, and Capacity |
| |
| Time, Temperature, and Money |
| |
| Angles, Perimeter, and Circumference |
| <ul style="list-style-type: none"> Determines the area of a figure when plotting ordered pairs without a grid* Determines the length of the side of a square, given its area* Determines the area of a parallelogram, given a labeled diagram* Calculate the height of a trapezoid, given the area, without the formula given (metric)* Solves problems comparing area to perimeter (analysis) |
| |
| Appropriate Units, Tools, Precision Strategies |
| <ul style="list-style-type: none"> Uses fractional units appropriately as they relate to precision* |
| |
| New Vocabulary: none |
| New Signs and Symbols: () ordered pair, - negative number |

Planning with DesCartes



DesCartes

Concept

Standard

Concept: Levels of Understanding

- For a concept and its relevant state standard, determine:



What do none of my students know?

What do a few of my students know?

What do most of my students know?

What do all of my students know?

Standards

- The student will use the scientific process to answer the questions:



What is the difference between an independent and a dependent variable?

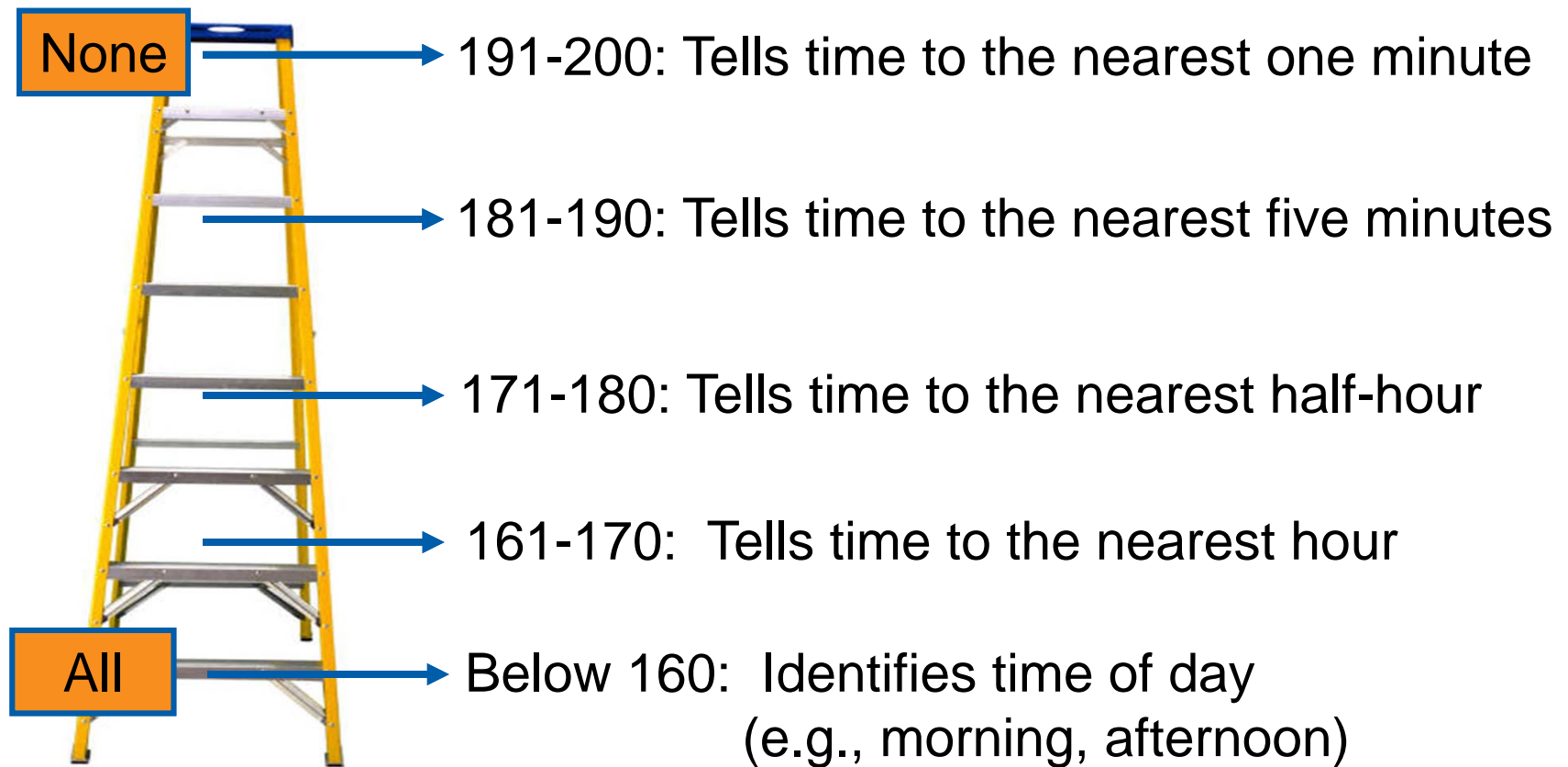
How do you control for a variable?

How do you pose a hypothesis?

What is an experiment?

Standard and DesCartes

- Measurement: Time



From Data to Instruction



- Step 1
 - ▶ Choose a standard or concept.
 - Third grade: Tell time to the nearest five minutes
- Step 2
 - ▶ Determine which goal strand and heading under which this falls in DesCartes.
 - Measurement: Time, Temperature, and Money

Use DesCartes to Plan for Instruction



- Step 3
 - ▶ What skills relative to telling time are listed under each RIT band?
 - ▶ In which RIT band do you find your standard?

Locating Skills Across the Continuum

Subject: Mathematics
Goal Strand: Measurement
RIT Score Range: 171 - 180



Grade Level Standard

| Skills and Concepts to Enhance 161 - 170 | Skills and Concepts to Develop 171 - 180 | Skills and Concepts to Introduce 181 - 190 |
|--|---|---|
| Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Compares objects (shorter, longer) Estimates and measures length of an object to the nearest inch using a picture of a ruler* Measures length with metric measures to the centimeter mark Measures length with customary measures to the inch mark* | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* Measures length with customary measures to the inch mark* Knows the approximate weight of familiar objects | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Knows the approximate length of familiar objects* Knows the approximate size of an inch Measures length with non-standard units Measures length with customary measures to the half-inch mark Determines more capacity or less capacity |
| Time, Temperature, and Money <ul style="list-style-type: none"> Orders periods of time (days of the week)* Reads a calendar Tells time to the nearest hour* Tells time to the nearest half hour | Time, Temperature, and Money <ul style="list-style-type: none"> Orders periods of time (months of the year, seasons)* Tells time to the nearest hour* Tells time to the nearest half hour Tells time to the nearest 5 minutes Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins to \$1.00 (with pictures of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) Uses cent sign and dollar sign when appropriate* Connects money with place value | Time, Temperature, and Money <ul style="list-style-type: none"> Identifies the correct time, given the words, and vice versa Interprets a calendar Tells time to the nearest 5 minutes Determines elapsed clock time Determines elapsed time under 1 hour or to the hour Determines elapsed time involving whole hours, whole days, whole years Computes simple conversions among units of time (days, weeks)* Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins to \$1.00 (without picture of coins) Makes change to \$1.00 by "counting on" or subtracting Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) Identifies the value of a collection of coins and bills to \$100.00 by "counting on"* Finds equivalent combinations of coins with the same value* Combines a collection of coins and identifies the correct notation |
| Angles, Perimeter, and Circumference | Angles, Perimeter, and Circumference | Angles, Perimeter, and Circumference |

Using DesCartes to Plan for Instruction



- Step 4
 - ▶ Use the *Class Breakdown by Goal Report* to determine what RIT bands are represented in your class.

Class Breakdown by Goal Report

What All Students Know



What Some Students Know

What No Students Know



| Goal | Goal Score | | | | | |
|--|--|---|---|--|---|-------------------------|
| | 191-200 | 201-210 | 211-220 | 221-230 | 231-240 | 241-250 |
| Operations and Algebraic Thinking | A.W. Rugland (198) I.L. Warton (200) B.N. Sizemore (202) | F.A. Strom (206) C.E. Swanston (211) D.E. Grimson (214) | C.A. Zilinski (213) C.F. Tresler (216) | K.A. Diamond (216) D.A. Garcia (219) A.E. Winston (219) M.H. Voltmer (227) M.A. Florez (235) | J.N. Vazquez (227) A.A. Sweet (233) S.N. Martinez ... (235) | |
| Number and Operations in Base Ten | | A.W. Rugland (198) I.L. Warton (200) B.N. Sizemore (202) F.A. Strom (206) C.E. Swanston (211) | C.A. Zilinski (213) D.E. Grimson (214) K.A. Diamond (216) C.F. Tresler (216) D.A. Garcia (219) A.E. Winston (219) | J.N. Vazquez (227) M.H. Voltmer (227) A.A. Sweet (233) S.N. Martinez ... (235) | M.A. Florez (235) | |
| Number & Operations-Fractions | A.W. Rugland (198) I.L. Warton (200) | B.N. Sizemore (202) F.A. Strom (206) D.E. Grimson (214) | C.E. Swanston (211) C.A. Zilinski (213) K.A. Diamond (216) C.F. Tresler (216) D.A. Garcia (219) A.E. Winston (219) | J.N. Vazquez (227) A.A. Sweet (233) | M.H. Voltmer (227) S.N. Martinez ... (235) | M.A. Florez (235) |
| Measurement and Data | A.W. Rugland (198) I.L. Warton (200) B.N. Sizemore (202) F.A. Strom (206) | C.A. Zilinski (213) K.A. Diamond (216) | C.E. Swanston (211) D.E. Grimson (214) C.F. Tresler (216) M.H. Voltmer (227) | D.A. Garcia (219) A.E. Winston (219) J.N. Vazquez (227) M.A. Florez (235) | S.N. Martinez ... (235) | A.A. Sweet (233) |
| Geometry | B.N. Sizemore (202) | A.W. Rugland (198) I.L. Warton (200) F.A. Strom (206) C.E. Swanston (211) | D.E. Grimson (214) K.A. Diamond (216) C.F. Tresler (216) D.A. Garcia (219) | C.A. Zilinski (213) A.E. Winston (219) M.A. Florez (235) | J.N. Vazquez (227) M.H. Voltmer (227) A.A. Sweet (233) | S.N. Martinez ... (235) |

Range of Skills from DesCartes



Time Skills

- 151-160 Identifies time of day (morning, afternoon)
- 161-170 Tells time to nearest hour, half-hour
- ★
 - 171-180 Tells time to nearest hour, half-hour, nearest five minutes
 - 181-190 Tells time to nearest five minutes
 - Identifies correct time given words and vice versa
 - Elapsed time under one hour, to the hour, day, and year
 - 191-200 Tells time to the nearest minute and quarter-hour
 - Identifies correct time given words and vice versa
 - Elapsed time to the hour, day, and year
 - 201-210 Applies dimensional analysis to simple, real-world time problems
 - 211-220 Applies dimensional analysis to simple, real-world time problems

Step 5: Standards and Students

Grade Level Standard

Subject: Mathematics
Goal Strand: Measurement



| 161-170 | 171-180 | 181-190 | 191-200 | 201-210 | 211-220 |
|---|---|--|---|---|--|
| <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Compares objects (shorter, longer) Estimates and measures length of an object to the nearest inch using a picture of a ruler* Measures length with metric measures to the centimeter mark Measures length with customary measures to the inch mark* <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Orders periods of time (days of the week)* Reads a calendar Tells time to the nearest hour* Tells time to the nearest half hour | <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* Measures length with customary measures to the inch mark* Knows the approximate weight of familiar objects <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Orders periods of time (months of the year, seasons)* Tells time to the nearest hour* Tells time to the nearest half hour Tells time to the nearest 5 minutes Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins to \$1.00 (with pictures of coins) | <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Knows the approximate length of familiar objects* Knows the approximate size of an inch Measures length with non-standard units Measures length with customary measures to the half-inch mark Determines more capacity or less capacity <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Identifies the correct time, given the words, and vice versa Interprets a calendar Tells time to the nearest 5 minutes Determines elapsed clock time Determines elapsed time under 1 hour or to the hour Determines elapsed time involving whole hours, whole days, whole years Computes simple conversions among units of time (days, weeks)* Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins to \$1.00 (without picture of coins) | <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Knows the approximate size of a foot Knows the approximate size of a mile* Measures length with non-standard units Knows the approximate size of an ounce* Uses balance scale to measure weight of an unknown object* Knows the approximate size of a pint* Converts between cups and pints* Converts between cups, pints, and quarts* <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Identifies the correct time, given the words, and vice versa Orders years* Tells time to the nearest quarter hour Tells time to the nearest 1 minute Determines elapsed clock time Determines elapsed time involving whole hours, whole days, whole years Solves simple problems involving elapsed time, with the conversion of hours Computes simple conversions among units of time (minutes, hours) Computes simple conversions among units of time (hours, days)* Reads Celsius thermometers to the nearest degree Solves problems involving measurement temperature Identifies the value of a collection of coins to \$1.00 | <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Knows the approximate size of a centimeter Knows the approximate size of a yard Measures length to the nearest centimeter* Converts between inches and feet Solves simple problems involving measurement of length Estimates simple conversions between the customary and metric system Knows the approximate size of a gram Knows the approximate size of a pound Converts between milligrams and grams* Converts between cups and pints* Converts between cups, pints, and quarts* <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Solves problems using a calendar* Solves simple problems involving elapsed time, with the conversion of hours Computes simple conversions among units of time (hours, days)* Computes more difficult conversions among units of time Solves problems involving measurement of time Knows common referents (boiling or freezing point, room temperature)* Finds equivalent combinations of dollars and cents with the same value* | <p>Length, Weight, Mass, and Capacity</p> <ul style="list-style-type: none"> Knows the approximate size of a millimeter* Knows the approximate size of a kilometer* Measures length to the nearest half inch* Measures length to the nearest eighth of an inch Measures length to the nearest eighth of an inch Converts between inches and feet Converts between inches, feet, and yards Converts between feet, yards, and miles* Computes basic addition with units of length Solves simple problems involving measurement of length Converts between the customary and metric system given conversion ratios (1-step) Solves simple problems involving measurement of weight* Knows the approximate size of an ounce* Knows the approximate size of a gallon* Converts between cups, pints, quarts, and gallons Estimates conversions between customary and metric system Solves simple problems involving capacity* <p>Time, Temperature, and Money</p> <ul style="list-style-type: none"> Solves difficult problems involving elapsed time, with the conversion of hours Computes basic operations with units of time Relates years, decades, centuries, and millenniums Reads Celsius and Fahrenheit thermometers to 0.1 degrees* |
| <p>Angles, Perimeter, and Circumference</p> | <p>Area, Surface Area, and Volume</p> <ul style="list-style-type: none"> Determines the area of a figure by counting square units* | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> |
| <p>Rate</p> | <p>Rate</p> | <p>Rate</p> | <p>Rate</p> | <p>Rate</p> | <p>Rate</p> |
| <p>Appropriate Units, Tools, Precision Strategies</p> | <p>Appropriate Units, Tools, Precision Strategies</p> | <p>Appropriate Units, Tools, Precision Strategies</p> | <p>Appropriate Units, Tools, Precision Strategies</p> | <p>Appropriate Units, Tools, Precision Strategies</p> | <p>Appropriate Units, Tools, Precision Strategies</p> |
| <p><i>New Vocabulary:</i> longest, shortest, tall</p> | <p><i>New Vocabulary:</i> dollar sign, line segment, metric, morning, ounce, penny, pound, quart, quarter, square unit</p> | <p><i>New Vocabulary:</i> coins, cup, estimation, gallon, half past, millimeter, nickel, noon, o'clock, pint, quarter past, quarter to, rod, smallest, tablespoon, teaspoon, ton, value, yard</p> | <p><i>New Vocabulary:</i> cups, gal, gallon, in, inch, m, meter/metre, pt, pint, qt, quart, tsp, teaspoon, variable</p> | <p><i>New Vocabulary:</i> Celsius, Fahrenheit, boiling, freezing, room, temperature</p> | <p><i>New Vocabulary:</i> Celsius, Fahrenheit, boiling, freezing, room, temperature</p> |
| <p><i>New Signs and Symbols:</i> cm centimeter/centimetre, ft feet, • point</p> | <p><i>New Signs and Symbols:</i> a.m., ¢ cent sign, \$ dollar sign, g gram, = is equal to, ° °F, p.m.</p> | <p><i>New Signs and Symbols:</i> c cup, gal gallon, in, inch, m meter/metre, pt pint, qt quart, tsp teaspoon, □ variable</p> | <p><i>New Signs and Symbols:</i> Celsius, Fahrenheit, boiling, freezing, room, temperature</p> | <p><i>New Signs and Symbols:</i> Celsius, Fahrenheit, boiling, freezing, room, temperature</p> | <p><i>New Signs and Symbols:</i> Celsius, Fahrenheit, boiling, freezing, room, temperature</p> |
| <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> |
| <p>Angles, Perimeter, and Circumference</p> | <p>Angles, Perimeter, and Circumference</p> | <p>Angles, Perimeter, and Circumference</p> | <p>Angles, Perimeter, and Circumference</p> | <p>Angles, Perimeter, and Circumference</p> | <p>Angles, Perimeter, and Circumference</p> |
| <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> | <p>Area, Surface Area, and Volume</p> |

Student A
Student B

Student C

Student D
Student E
Student F

Student G
Student H
Student I
Student J
Student K

Student L
Student M

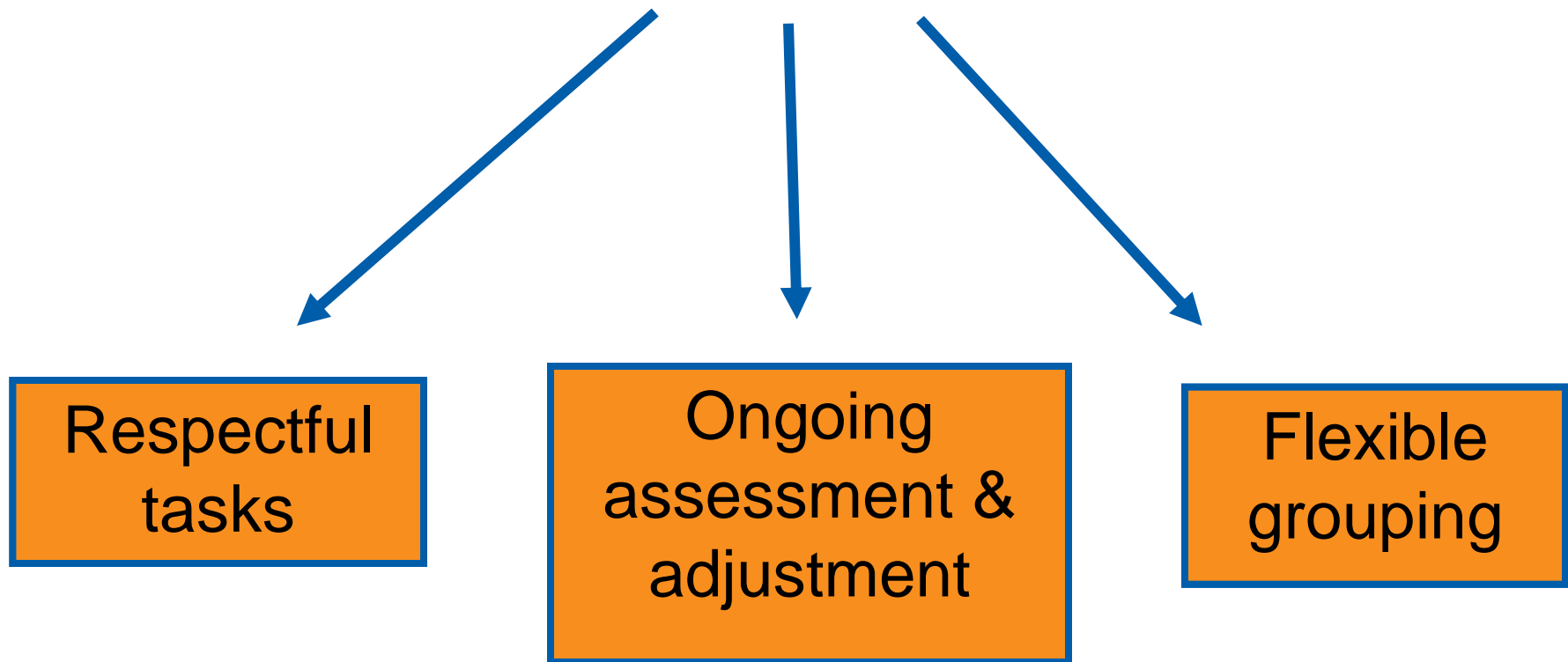
Your Turn



- Identify a standard or overarching concept.
- Reviewing the *DesCartes Framework*, find the heading under which your concept falls.
- Highlight the skills for that concept across the *DesCartes* continuum. Identify the first RIT band that lists your standard. How does this concept evolve over RIT bands?
- Use the *Class Breakdown by Goal Report* to match student scoring groups to *DesCartes* skills relative to the overarching standard or concept.
- Write student scoring groups on sticky notes. Place sticky notes on *DesCartes*.

Differentiated Instruction

A teacher's response to learners' needs is guided by three key principles of differentiation.



Virtual Observation

- Flexible Grouping

Within the
classroom



Across the
grade



In multiple
grades



Grouping Measurement Skills

- Time Skills from *DesCartes*

151-160 Identifies time of day (morning, afternoon)

161-170 Tells time to nearest hour, half-hour



171-180 Tells time to nearest hour, half-hour, nearest five minutes

181-190 Tells time to nearest five minutes

Identifies correct time given words and vice versa

Elapsed time under one hour, to the hour, day, and year

191-200 Tells time to the nearest minute and quarter-hour

Identifies correct time given words and vice versa

Elapsed time to the hour, day, and year

201-210 Applies dimensional analysis to simple, real-world time problems

211-220 Applies dimensional analysis to simple, real-world time problems

Standards and Students

Grade Level Standard

Subject: Mathematics
Goal Strand: Measurement



| 161-170 | 171-180 | 181-190 | 191-200 | 201-210 | 211-220 |
|--|--|--|--|--|--|
| Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Compares objects (shorter, longer) Estimates and measures length of an object to the nearest inch using a picture of a ruler* Measures length with metric measures to the centimeter mark Measures length with customary measures to the inch mark* | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* Measures length with customary measures to the inch mark* Knows the approximate weight of familiar objects | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Knows the approximate length of familiar objects* Knows the approximate size of an inch Measures length with non-standard units Measures length with customary measures to the half-inch mark Determines more capacity or less capacity | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Knows the approximate size of a foot Knows the approximate size of a mile* Measures length with non-standard units Knows the approximate size of an ounce* Uses balance scale to measure weight of an unknown object* Knows the approximate size of a pint* Converts between cups and pints* Converts between cups, pints, and quarts* | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Knows the approximate size of a centimeter Knows the approximate size of a yard Measures length to the nearest centimeter* Converts between inches and feet Solves simple problems involving measurement of length Estimates simple conversions between the customary and metric system Knows the approximate size of a gram Knows the approximate size of a pound Converts between milligrams and grams* Converts between cups and pints* Converts between cups, pints, and quarts* | Length, Weight, Mass, and Capacity <ul style="list-style-type: none"> Knows the approximate size of a millimeter* Knows the approximate size of a kilometer* Measures length to the nearest half inch* Measures length to the nearest eighth of an inch Measures length to the nearest eighth of an inch Converts between inches and feet Converts between inches, feet, and yards Converts between feet, yards, and miles* Computes basic addition with units of length Solves simple problems involving measurement of length Converts between the customary and metric system given conversion ratios (1-step) Solves simple problems involving measurement of weight* Knows the approximate size of an ounce* Knows the approximate size of a gallon* Converts between cups, pints, quarts, and gallons Estimates conversions between customary and metric system Solves simple problems involving capacity* |
| Time, Temperature, and Money <ul style="list-style-type: none"> Orders periods of time (months of the year, seasons)* Reads a calendar Tells time to the nearest hour* Tells time to the nearest half hour | Time, Temperature, and Money <ul style="list-style-type: none"> Orders periods of time (months of the year, seasons)* Tells time to the nearest hour* Tells time to the nearest half hour Tells time to the nearest 5 minutes Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins to \$1.00 (with pictures of coins) Identifies the value of a collection of coins and bills to \$1.00 | Time, Temperature, and Money <ul style="list-style-type: none"> Identifies the correct time, given the words, and vice versa Interprets a calendar Tells time to the nearest 5 minutes Determines elapsed clock time Determines elapsed time under 1 hour or to the hour Determines elapsed time involving whole hours, whole days, whole years Computes simple conversions among units of time (days, weeks)* Reads Fahrenheit thermometers to the nearest degree* Identifies the value of a collection of coins and bills to \$1.00 Identifies the value of a collection of coins and bills to \$1.00 | Time, Temperature, and Money <ul style="list-style-type: none"> Identifies the correct time, given the words, and vice versa Orders years* Tells time to the nearest quarter hour Tells time to the nearest 1 minute Determines elapsed clock time Determines elapsed time involving whole hours, whole days, whole years Solves simple problems involving elapsed time, with the conversion of hours Computes simple conversions among units of time (minutes, hours) Computes simple conversions among units of time (hours, days)* Reads Celsius thermometers to the nearest degree* Knows common referents (boiling or freezing point, room temperature)* Finds equivalent combinations of dollars and cents with the same value* | Time, Temperature, and Money <ul style="list-style-type: none"> Solves problems using a calendar* Solves simple problems involving elapsed time, with the conversion of hours Computes simple conversions among units of time (hours, days)* Computes more difficult conversions among units of time Solves problems involving measurement of time Knows common referents (boiling or freezing point, room temperature)* Finds equivalent combinations of dollars and cents with the same value* | Time, Temperature, and Money <ul style="list-style-type: none"> Solves difficult problems involving elapsed time, with the conversion of hours Computes basic operations with units of time Relates years, decades, centuries, and millenniums Reads Celsius and Fahrenheit thermometers to 0.1 degrees* |
| Area, Surface Area, and Volume <ul style="list-style-type: none"> Determines the area of a figure by counting square units* | Area, Surface Area, and Volume <ul style="list-style-type: none"> Determines the area of a figure by counting square units* | Area, Surface Area, and Volume <ul style="list-style-type: none"> Compares objects (larger, smaller) Determines the area of a figure by counting square units* | Area, Surface Area, and Volume <ul style="list-style-type: none"> Compares objects (larger, smaller) Determines the area of a figure by counting square units* | Area, Surface Area, and Volume <ul style="list-style-type: none"> Compares objects (larger, smaller) Determines the area of a figure by counting square units* | Area, Surface Area, and Volume <ul style="list-style-type: none"> Compares objects (larger, smaller) Determines the area of a figure by counting square units* |
| Rate | Rate | Rate | Rate | Rate | Rate |
| Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies | Appropriate Units, Tools, Precision Strategies |
| New Vocabulary: longest, shortest, tall | New Vocabulary: dollar sign, line segment, metric, morning, ounce, penny, pound, quart, quarter, square unit | New Vocabulary: coins, cup, estimation, gallon, half past, millimeter, nickel, noon, o'clock, pint, quarter past, quarter to, rod, smallest, tablespoon, teaspoon, ton, value, yard | New Vocabulary: coins, cup, estimation, gallon, half past, millimeter, nickel, noon, o'clock, pint, quarter past, quarter to, rod, smallest, tablespoon, teaspoon, ton, value, yard | New Vocabulary: coins, cup, estimation, gallon, half past, millimeter, nickel, noon, o'clock, pint, quarter past, quarter to, rod, smallest, tablespoon, teaspoon, ton, value, yard | New Vocabulary: coins, cup, estimation, gallon, half past, millimeter, nickel, noon, o'clock, pint, quarter past, quarter to, rod, smallest, tablespoon, teaspoon, ton, value, yard |
| New Signs and Symbols: cm centimeter/centimetre, ft feet, • point | New Signs and Symbols: a.m., ¢ cent sign, ¤ dollar sign, g gram, = is equal to, * °F, p.m. | New Signs and Symbols: c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon, □ variable | New Signs and Symbols: c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon, □ variable | New Signs and Symbols: c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon, □ variable | New Signs and Symbols: c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon, □ variable |
| Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure where all sides are labeled Determines the perimeter of a figure where some sides are labeled Solves simple problems involving the perimeter of squares, rectangles, or triangles | Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure where some sides are labeled Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents | Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure using non-standard units* Determines the process for calculating perimeter Solves problems involving the perimeter of squares, rectangles, or triangles Finds the perimeter of a polygon using a formula Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents Determines the diameter, given radius, and vice versa* | Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure where some sides are labeled Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents | Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure where some sides are labeled Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents | Angles, Perimeter, and Circumference <ul style="list-style-type: none"> Determines the perimeter of a figure where some sides are labeled Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents |
| Area, Surface Area, and Volume | Area, Surface Area, and Volume | Area, Surface Area, and Volume | Area, Surface Area, and Volume | Area, Surface Area, and Volume | Area, Surface Area, and Volume |

Your Turn



1. Identify a standard or overarching concept.
2. Reviewing the *DesCartes Framework*, find the heading under which your concept falls.
3. Highlight the skills for that concept across the *DesCartes* continuum. Identify the first RIT Band that lists your standard. How does this concept evolve over RIT bands?
4. Use the *Class Breakdown by Goal Report* to match student scoring groups to *DesCartes* skills relative to the overarching standard or concept.
5. Write student scoring groups on sticky notes. Place sticky notes on *DesCartes*.
6. How will you regroup students to both meet their needs and make it manageable for the teacher?

Data to Instruction Framework

| | | |
|---------------------|--------------|-----------------------|
| | Content Area | |
| | Concept | |
| Overall Score Range | | Goal Performance Area |

| | Student Groups | Skills from Selected Learning Statements | Student Activities/ Instructional Strategies Assessment |
|--------------------------------------|----------------|--|---|
| Above-Score Range RIT Range: | | | |
| Middle-Score Range RIT Range: | | | |
| Below-Score Range RIT Range: | | | |

Your Turn



1. Identify a standard or overarching concept.
2. Reviewing the *DesCartes Framework*, find the heading under which your concept falls.
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4. Use the *Class Breakdown by Goal Report* to match student scoring groups to *DesCartes* skills relative to the overarching standard or concept.
5. Write student scoring groups on sticky notes. Place sticky notes on *DesCartes*.
6. How will you regroup students to both meet their needs and make it manageable for the teacher?
7. How will you teach to meet each group's needs?

Instructional Strategies



| A Sampling of Differentiated Strategies | | | |
|---|-------------------------------|------------------------|-------------------------|
| Multiple Intelligences | Tiered Lessons | 4-MAT | Jigsaw |
| Tiered Centers or Assignments | Varied Questioning Strategies | Interest Centers | Anchor Activities |
| Learning Contracts | Interest Groups | Varied Organizers | Small-Group Instruction |
| Varied Homework | Varied Texts | Group Investigation | Compacting |
| Varied Supplementary Materials | Orbitals | Varied Journal Prompts | Literature Circles |
| Independent Study | Complex Instruction | Cubing | Reading Buddies |

Source: *The Differentiated Classroom*, C. Tomlinson, 1999

Laddering with DesCartes



- Resources for Teachers
 - ▶ www.fortheteachers.org
 - Ladders
 - Differentiation
 - Grouping
 - Rubrics and assessment

Approaches to Differentiation



- Lo-Prep Differentiation
 - ▶ Varying text
 - ▶ Anchoring
 - ▶ Tiered homework

- Hi-Prep Differentiation
 - ▶ Curriculum compacting
 - ▶ Tiered assignments
 - ▶ Laddered thematic units

Classroom Situations



- Fifth-grade history teacher:
Events leading to Revolutionary War
- Third-grade language arts teacher:
Letter-writing
- Middle/High science teacher:
Cells
- Third-grade math teacher:
Measurement
- Middle/High math teacher:
Geometry

Sample Situation



- Fifth-grade history teacher:
Events leading to Revolutionary War
 - ▶ Content: Provide a choice of paper and pencil, electronic writing board, or online practice opportunities.
 - ▶ Process: Have students write persuasive or informative letters.
 - ▶ Product: Provide model letters to serve as rubrics for writing.

Virtual Observation



- Managing the Differentiated Classroom
 - ▶ Physical space
 - ▶ Activities and work time
 - ▶ Supervision



Talking with Students



- How might you explain differentiation to your students?

Planning Forward



WHAT
will you do with the
information you
learned today?

HOW
will you approach
implementation?

WHO
will be involved?

WHEN
will you try it?

Today's Learning: Exit Ticket



What worked for you in this session?



What will you change as a result of your learning today?



What are you wondering?



What do you need now?



Northwest Evaluation Association

Partnering to help all kids learn®

Thank you for your
attention and hard work.

Help Us Learn from You

Facilitator:

Workshop: