The mission of the Chardon Local Schools is high achievement for all students where learning is our most important work.

Course of Study — MATH

Revised November 2021

FUNDAMENTALS of ALGEBRA

CHARDON
LOCAL SCHOOLS
#WeAreChardon

COS — MATH — *Revised November 2021*

Fundamentals of Algebra

Number Sense and Quantity

Strand: Analyze number relationships.

Learning Standard:

OPERATIONS AND ALGEBRAIC THINKING
Use the four operations with whole numbers to solve problems.
4.OA.3

NUMBER AND OPERATIONS—FRACTIONS
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. (Fractions need not be simplified).
4.NF.4

NUMBER AND OPERATIONS IN BASE TEN
Understand the place value system
5.NBT.2 / 5.NBT.3 / 5.NBT.4

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way

	• practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Number Sense and Quantity

Strand: Conceptualize positive and negative numbers (including decimals and fractions)

Learning Standard:

THE NUMBER SYSTEM
Apply and extend previous understandings of numbers to the system of rational numbers.
6.NS.5 / **6.NS.6**

How Taught?
Teaching activities may include, but are not limited to:

- **Direct Instruction**
- **Cooperative Groups**
- **Stations**
- **Data Driven Instruction**
- **Scaffolding**

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — *Revised November 2021*

Fundamentals of Algebra

Number Sense and Quantity

Strand: Recognize that there are numbers that are not rational, and approximate them with rational numbers.

Learning Standard:

THE NUMBER SYSTEM
Know that there are numbers that are not rational, and approximate them by rational numbers.
8.NS.1 / **8.NS.2**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Number Sense and Quantity

Strand: Apply and extend previous understanding of addition, subtraction, multiplication, and division, including expressions that require applying order of operations.

Learning Standard:

NUMBER AND OPERATIONS IN BASE TEN
Understand the place value system.
5.NBT.7

THE NUMBER SYSTEM
Compute fluently with multi-digit numbers and find common factors and multiples.
6.NS.3 / **6. NS.1**

THE NUMBER SYSTEM
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
7.NS.1 / **7.NS.2** / **7.NS.3**

EXPRESSIONS AND EQUATIONS
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.EE.3

QUANTITIES
Reason quantitatively and use units to solve problems.
N.Q.3

How Taught?

Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?

Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

	Re-teaching activities may include, but are not limited to: ● breaking down concept into smaller components ● presenting the information again in a different way ● Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way ● practice activities such as computer tutorials, games, hands-on activities ● review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Arithmetic to Algebra

Strand: Generate and interpret equivalent numeric and algebraic expressions; including simplifying and evaluating algebraic expressions.

Learning Standard:

EXPRESSIONS AND EQUATIONS
Use properties of operations to generate equivalent expressions.
7.EE.1 / **7.EE.2**

MEASUREMENT AND DATA
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
3.MD.7

SEEING STRUCTURE IN EXPRESSIONS
Interpret the structure of expressions. Write expressions in equivalent forms to solve problems.
A.SSE.1 / **A.SSE.3**

OPERATIONS AND ALGEBRAIC THINKING
Use the four operations with whole numbers to solve problems.
4.OA.2

EXPRESSIONS AND EQUATIONS
Apply and extend previous understandings of arithmetic to algebraic expressions.
6.EE.3 / **6.EE.4**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

	Re-teaching activities may include, but are not limited to: ● breaking down concept into smaller components ● presenting the information again in a different way ● Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way ● practice activities such as computer tutorials, games, hands-on activities ● review sessions

COS — MATH — *Revised November 2021*

Fundamentals of Algebra

Arithmetic to Algebra

Strand: Interpret and use the properties of exponents (emphasis on numerical bases, introduction to variable bases)

Learning Standard:

EXPRESSIONS AND EQUATIONS
Apply and extend previous understandings of arithmetic to algebraic expressions.
6.EE.2

QUANTITIES
Reason quantitatively and use units to solve problems.
N.Q.1

EXPRESSIONS AND EQUATIONS
Work with radicals and integer exponents.
8.EE.1 / **8.EE.2** / **8.EE.3** / **8.EE.4**

SEEING STRUCTURE IN EXPRESSIONS
Interpret the structure of expressions.
A.SSE.1

GEOMETRY,
Understand and apply the Pythagorean Theorem
8.G.7

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components

	• presenting the information again in a different way • Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Proportional Reasoning

Strand: Explain equivalent ratios by using a variety of models.

Learning Standard:

RATIOS AND PROPORTIONAL RELATIONSHIPS
Understand ratio concepts and use ratio language
6.RP.1

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Proportional Reasoning

Strand: Recognize and represent proportional relationships between quantities.

Learning Standard:

NUMBER AND OPERATIONS—FRACTIONS
Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
4.NF.1

RATIOS AND PROPORTIONAL RELATIONSHIPS
Understand ratio concepts and use ratio reasoning to solve problems.
6.RP.1 / **6.RP.2** / **6.RP.3**

RATIOS AND PROPORTIONAL RELATIONSHIPS
Analyze proportional relationships and use them to solve real world and mathematical problems.
7.RP.1 / **7.RP.2** / **7.RP.3**

RATIOS AND PROPORTIONAL RELATIONSHIPS
Use rate and ratio reasoning to solve problems.
6.RP.3

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way

Fundamentals of Algebra

	• Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Proportional Reasoning

Strand: Graph proportional relationships.

Learning Standard:

EXPRESSIONS AND EQUATIONS
Understand the connections between proportional relationships, lines, and linear equations.
8.EE.5 / **8.EE.6**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — *Revised November 2021*

Fundamentals of Algebra

Equations and Inequalities

Strand: Create and solve equations and inequalities in one variable.

Learning Standard:

EXPRESSIONS AND EQUATIONS
Apply and extend previous understandings of arithmetic to algebraic expressions.
6.EE.2 / **6.EE.5** / **6.EE.6**

REASONING WITH EQUATIONS AND INEQUALITIES
Understand solving equations as a process of reasoning and explain the reasoning.
A.REI.1

EXPRESSIONS AND EQUATIONS
Reason about and solve one-variable equations and inequalities.
6.EE.7

EXPRESSIONS AND EQUATIONS
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.EE.4

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way

Fundamentals of Algebra

	• Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Equations and Inequalities

Strand: Use units as a way to understand problems and guide the solutions of multi-step problems.

Learning Standard:

QUANTITIES
Reason quantitatively and use units to solve problems.
N.Q.1

MEASUREMENT AND DATA
Represent and interpret data.
3.MD.3

THE NUMBER SYSTEM
Apply and extend previous understandings of numbers to the system of rational numbers.
6.NS.8

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — *Revised November 2021*

Fundamentals of Algebra

Equations and Inequalities

Strand: Create algebraic models in two variables

Learning Standard:

EXPRESSIONS AND EQUATIONS
Reason about and solve one-variable equations and inequalities.
6.EE.6 / **6.EE.5**

EXPRESSIONS AND EQUATIONS
Analyze and solve linear equations and pairs of simultaneous linear equations.
8.EE.8

CREATING EQUATIONS
Create equations that describe numbers or relationships.
A.CED.2

REASONING WITH EQUATIONS AND INEQUALITIES
Represent and solve equations and inequalities graphically. **A.REI.10** / **A.REI.11**

EXPRESSIONS AND EQUATIONS
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.EE.3 / **7.EE.4**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components

	• presenting the information again in a different way • Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Equations and Inequalities

Strand: Solve literal equations.

Learning Standard:

EXPRESSIONS AND EQUATIONS,
Represent and analyze quantitative relationships between dependent and independent variables.
6.EE.9

REASONING WITH EQUATIONS AND INEQUALITIES
Solve equations and inequalities in one variable.
A.REI.3

CREATING EQUATIONS
Create equations that describe numbers or relationships.
A.CED.4

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Quantitative Reasoning with Functions

Strand: Understand characteristics of functions

Learning Standard:

INTERPRETING FUNCTIONS
Understand the concept of a function, and use function notation.
F.IF.1 /**F.IF.5**

FUNCTIONS
Define, evaluate, and compare functions.
8.F.1 /**8.F.2**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way
- Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way
- practice activities such as computer tutorials, games, hands-on activities
- review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Quantitative Reasoning with Functions

Strand: Compare and graph functions.

Learning Standard:

RATIOS AND PROPORTIONAL RELATIONSHIPS
Understand ratio concepts and use ratio reasoning to solve problems.
6.RP.2

RATIOS AND PROPORTIONAL RELATIONSHIPS
Analyze proportional relationships and use them to solve real world and mathematical problems.
7.RP.1 / **7.RP.2** / **7.RP.3**

FUNCTIONS
Define, evaluate, and compare functions. Use functions to model relationships between quantities.
8.F.2 / **8.F.3** / **8.F.5**

INTERPRETING FUNCTIONS
Analyze functions using different representations.
F.IF.7 / **F.IF.4**

FUNCTIONS
Define, evaluate, and compare functions.
8.F.3 / **8.F.2**

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components

	• presenting the information again in a different way • Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions

COS — MATH — ***Revised November 2021***

Fundamentals of Algebra

Quantitative Reasoning with Functions

Strand: Construct and interpret functions.

Learning Standard:

FUNCTIONS
Use functions to model relationships between quantities.
8.F.4

BUILDING FUNCTIONS
Build a function that models a relationship between two quantities.
F.BF.1

EXPRESSIONS AND EQUATIONS
Represent and analyze quantitative relationships between dependent and independent variables.
6.EE.9

INTERPRETING FUNCTIONS
Understand the concept of a function, and use function notation.
F.IF.2

How Taught?
Teaching activities may include, but are not limited to:

- Direct Instruction
- Cooperative Groups
- Stations
- Data Driven Instruction
- Scaffolding

Materials:

- Calculator (Desmos, TI-30X IIS)
- Guided Notes
- Board Adopted Materials

How Assessed?
Assessments may include, but are not limited to:

- Pre-Assessments (pre-tests, observation, anticipation guide, questioning, diagnostics)
- Formative Assessments (entry/exit slips, group work, reflections, discussions, homework/classwork, self and peer evaluations, observations, conferences, rubrics)
- Summative Assessments (formal essays, using rubrics; tests/exams, projects, creative assignments, presentations)

How Re-Taught?
Re-teaching activities may include, but are not limited to:

- breaking down concept into smaller components
- presenting the information again in a different way

Fundamentals of Algebra

	• Universal Design for Learning principles offering students opportunities to experience and engage material in new and different way • practice activities such as computer tutorials, games, hands-on activities • review sessions