Educating Young Men

Language Arts/Mathematics

Grades 5 Resource- Unit 2
Young Men’s Leadership Academy
Academic Philosophy

Our philosophy is built upon research that indicates that boys and girls learn differently. We recognize that boys have varied academic, social, and emotional needs. We will address those needs through instruction that is tailored to the male learner and delivered in an environment that promotes academic success while instilling a strong culture of brotherhood and camaraderie.
Teaching Young Men

The goal of educators is to provide equitable learning opportunities for all students in the classroom. Research indicates that boys and girls develop literacy skills differently; resulting in disparate academic outcomes. As a result, providing equitable access to positive classroom experiences is an issue that has increased in urgency.

Past and current research report consistent findings:

- Gender is a significant factor in both reading materials and reading achievement for boys and girls
- On the US National Assessment of Educational Progress (NAEP) boys have scored significantly lower than girls in reading at all grade levels every year since 1992 (the first year NAEP scores were available)
- Boys are more likely than girls to be placed in special education programs
- Boys are less likely than girls to go to college
- Dropout rates are higher for boys than for girls

What causes this achievement gap?

Some researchers argue that the gender gap originates in biological, developmental, or environmental differences between boys and girls. Offering yet another perspective, sources such as ASCD and Psychology Today propose that the gap may be due to the way literacy is taught; suggesting that educational strategies that are more mindful of the way male brains develop would help close the gap.

What can educators do?

The encouraging news is that none of the findings above are irreversible. Recent studies focused on how boys learn suggest that if their academic needs are properly addressed, boys can obtain academic success equal to their female counterparts. A key component of their academic success lies in ensuring that boys are provided with classroom experiences that address their interests, needs, and learning styles.

Extracted from Me Read? No Way! Copyright Ontario Education
Teaching Young Men

**Boy Smarts**
Boys are the masters of minimalism and the practitioners of “just –in-time” management. Asked to do almost any task, their immediate response is “later”. If they are asked to write a 50-word essay, they will count the words, and if they write 51 words most of them will think they have overdone it. If you have predominantly boys in your class, there are several things that you can do to improve behavior and learning. These methods are likely to work with most boys.

**Respect**
Boys are constantly checking to see if you respect them. They respond well to people who have expectations of them and respect them as capable of meeting those goals. As the TV character Ali G. would say, “respect!” If a boy has a sense that you respect him, he will walk over coals for you. Never ask a boy who is a poor reader to read out loud in front of his peers. He will be humiliated and will never do anything for you ever again.

**Have clear signals about who is in charge**
Boys need boundaries. They need to know who is in charge here. They respond to teachers who are fair, funny and respect their points of view, and they generally do better with teacher-led learning. Open spaced learning areas where no one clearly owns the space can be quite anxiety provoking for boys, and that anxiety converts into expressions of low motivation and clowning type behaviors.

**Use a physical signal when you want silence**
Boys need more signals than girls partly because they are less tuned into facial cues. Boys are more able to screen out white noise. (Teachers requesting quiet equals white noise!) Therefore, deliver instructions in silence. Use visual cues, raising hand, turning lights off and on, and moving to a particular part of the room. Never, ever yell.

**Fewer rules and fewer words is better**
Have a couple (no more than three) clear rules that you apply fairly and consistently. Base your classroom management on the idea of, “I won’t let this happen to you, and I won’t let you do it to anyone else”. During instruction, use a backup visual that you can point to for boys who have difficulty listening.
**Value them and they will be heroes**

Boys are tuned into hierarchies. This means the predominant values of a classroom, family or school will play a powerful role in determining their actions. Have a couple of core values (e.g. compassion, generosity, being part of a team). Live by them and insist upon them. Help boys to learn that they can be heroes and victorious but that winning doesn’t mean someone else has to lose.

**Use knowledge from computer games as an inspiration for learning**

Boys’ attraction to competition will override almost any disadvantage or loss of motivation. They generally love competitive games especially when there is not an ultimate winner. Quick fire quizzes with several rounds are a successful way of engaging boys. Computer game designers have cleverly used the principles of engagement to captivate boys:

- Make success challenging but attainable by breaking it down into stages.
- Make success more likely than failure, the most motivating games have players succeed about 80% of the time, initially, before building up to 100% before moving to the next level.
- Give people the opportunity to try again.
- Try to create a sense of moratorium where boys and girls can try to out new activities in a setting where there are no consequences.
- Use lots of movement.

Pay attention to less competitive, sensitive boys. Assisting them to attain personal bests can be useful. Give boys more time to answer and to assemble the words and give them a chance to phone a friend (the friend cannot answer the question but can make helpful suggestions).

**Move regularly**

Teaching boys is like being a cross between a matador and a traffic cop. Keep on the move and mingle with the crowd. Boys see things best in motion. Use visuals and animations as often as you can. As James (2009) notes, boys love targeting. If you have ever watched boys place rubbish into bins you will see that they don’t place it, they take a shot. For this reason, movement and aiming to achieve a set target are powerful strategies with boys.

**Control where they sit**

Move boys who do not appear to be paying attention to the front. Proactively shift the seating of boys who seem unsettled or distracted. They will often be playing up to impress their local audience. Boys need quiet times to reflect and re-energize, boys need quiet times to think, read and at times, quietly chat with others.

**Know about anger**

Anger and shame can stop boys’ learning, and once boys are angry, it is harder for them to get over it. If they feel you are going to shame them in front of their peers, they will fight you tooth and nail. Most boys will do silly, self-defeating things rather than lose
the respect of their peers. Take your sail out of their winds. Deal with issues at a time of your choosing not when the boy wants to deal with it. There are also decision-making differences between girls and boys when involved in dispute resolution. Girls are often more able to see the effect of their actions on other students so asking, “how you think she felt?” type questions may pay off. In contrast boys may be less cued into other students’ emotions and a more successful strategy may be reinforcing a rule such as, “I wouldn’t let him do that to you, and I’m not going to let you do it to him”.

**Boys are loyal and funny**

Boys love the inside word; the cheat sheet and they love to score. Giving them hints suggestions and a way to succeed builds their loyalty to you. Boys buy popularity through achievement, jokes and skills. Humor is an essential quality.

**Boys generally learn through doing- thinking- talking**

Boys like movement and are generally more active than girls. They are also more concerned with performance. While some boys will be inherently interested in the material, almost all boys engage when there is a competitive spirit. The more that you mimic a game show format the more boys will be engaged.

**Give them a whiff of success**

Most men and boys waste an incredible amount of time completing tasks that don’t need to be done and avoiding tasks that don’t need to be avoided. Help them to structure tasks and to improve on early attempts so that they gain mastery and success. Once a boy believes he can be successful, he’ll almost always live up to it.

Extracted from the *Brain Based Learning Manual* Copyright Andrew Fuller
Teaching Young Men

Model of a Boy-Friendly Curriculum

**BOYS NEED CURRICULUM THAT PROVIDES**
- "Safe" classes that foster discussion
- Tasks that are open-ended and require interchange with others
- Subjects that mandate exploration of "the self"
- Teachers who "facilitate"
- Subjects that accept alternative truths

**BOYS NEED CURRICULUM THAT PROVIDES**
- A wide variation of courses and activities.
- Teachers with "passion"
- "Disciplined freedom"
- Avenues to be impulsive
- Tasks that are "relevant" - can be explored through boys' culture
- Problem-based learning, ("doing it")
- Hands-on activities with practical solutions

**BOYS NEED CURRICULUM THAT PROVIDES**
- Freedom for individual interpretation of curriculum tasks
- Freedom to undertake curricular tasks according to personal skills
- Freedom to access range of academic and non-academic activities
- Freedom from pursuing an "ideal" masculinity

**BOYS NEED CURRICULUM THAT PROVIDES**
- Small class sizes
- Pedagogy that counters fear of ridicule or embarrassment
- Skills to enable expression
- A vocabulary to discuss masculinity
- A mandate to explore individuality
- Opportunity to engage "a passion"
- Opportunity to be a risk-taker
- A level playing field between types of masculinities

Adapted from Imms, 2003
Teaching Young Men

COURAGEOUS CONVERSATIONS

According to the Ontario Ministry of Education, boys respond well to real-world themes that offer them authentic learning experiences – that is, experiences they have had or could have in their own lives. Exploring real-world themes typically involves a combination of resources and activities. Real-world themes have a clear focus on one or more meaningful, key concepts and authentic learning experiences that involve both direct instruction and students’ discovery of things on their own.

In addition to authentic real-world experiences, students need opportunities to engage in courageous conversations about race and issues of discrimination. This work is critical for students and teachers to engage in because outside school experiences are quite inconsistent with the expectations that are inside of school. It is the school’s responsibility to take on the onus of understanding what students experience outside of school.

For example, if students read kinds of books outside of school, and if they engage in social media outside of school, then teachers must figure out how to utilize that as an anchor for what happens inside of school. It is the teacher’s responsibility to develop learner lenses to understand what’s happening with the student outside of school so that he or she can be responsive to that reality. As teachers and students engage in courageous conversations within the classroom, it is imperative that all members are aware of the four agreements.

The Four Agreements of Courageous Conversations:

1. **Stay engaged**: Staying engaged means “remaining morally, emotionally, intellectually, and socially involved in the dialogue”
2. **Experience discomfort**: This norm acknowledges that discomfort is inevitable, especially, in dialogue about race, and that participants make a commitment to bring issues into the open.
3. **Speak your truth**: This means being open about thoughts and feelings and not just saying what you think others want to hear.
4. **Expect and accept non-closure**: This agreement asks participants to “hang out in uncertainty” and not rush to quick solutions, especially in relation to racial understanding, which requires ongoing dialogue (pp.58-65).
Unit 2
**Language Arts**
**Grade 5**

**Theory:** *Read between the Lines-Bringing critical-literacy skills into the classroom*
Critical literacy means that boys adopt a critical or questioning stance regarding what they are reading, hearing, or viewing. All students need to acquire more than the ability to decode words and make meaning from text. They need to be helped to exercise their critical thoughts and perceptions and understand how texts are constructed and how texts try to inform, persuade, entertain, and influence the reader. Particularly boys need to learn to have deep conversations around how texts present particular views of the world, and through these conversations, they should come to understand that they have the power and responsibility to make a difference in the world.

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<td>NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</td>
<td>Read texts closely (questioning, determining importance, looking for patterns) to make meaning of what was read. Allow students to write their real-life connection to a text. Use quotes or references from a text when explaining what the text says explicitly and/or when drawing inferences drawn from the text.</td>
<td>Short story from Wonders: <em>Where the Mountain Meets the Moon</em> Bud, Not Buddy by Christopher Paul Curtis</td>
<td>Teachers will create several text-dependent questions for students to cite textual evidence and make logical inferences. Students will use the “APE” (answer, prove, extend) strategy to support their written responses to text-dependent questions. Students will create an “APE” bookmark, which will outline the various parts of the “APE” strategy.</td>
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**Language Arts**  
**Grade 5**

**Theory:** *Explicit teaching offers good comprehension skills*
Research indicates that good readers are strategic in their reading, and that the explicit teaching of comprehension strategies can foster the development of comprehension skills. For many boys, literature appears to involve a secret code, one that is understood by authors, teachers, and some students, especially girls. Not surprisingly, the fact that these “insiders” all understand the code and are able to interpret “deep” or “hidden” meanings. Boys need to be let in on the “secret” of what happens when we read and write. We need to examine processes that are often hidden or left unspoken and make them clear and explicit.

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<td>NJSLSA.R2</td>
<td>Identify the key details</td>
<td>Short story from Wonders:</td>
<td>The teacher will allow students to develop a “secret” formula on how to identify the theme or central idea of a text. To support the work of students developing a “secret” formula for identifying the theme or central idea of a text, teachers may ask the following questions:</td>
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<td>Analyze the actions and thoughts of characters or speakers in texts, looking for patterns</td>
<td>• Where the Mountain Meets the Moon</td>
<td>• What literary components are needed to develop a theme or central idea?</td>
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<td></td>
<td>Identify the theme of the text</td>
<td>Bud, Not Buddy by Christopher Paul Curtis</td>
<td>• Number each component from most to least important.</td>
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<td></td>
<td>Determine the central message or them</td>
<td></td>
<td>• What questions must a reader ask a character or author to identify the theme or central idea?</td>
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Using the newly, developed “secret” formula, students will create a graphic organizer, which will be used to record key details for the theme or central idea of a text.
## Language Arts
### Grade 5

**Theory:** *Help Make it a Habit*

Research indicates that boys need consistent, sustained opportunities to read and write. They need two to three hours per week for reading and writing practice in a relatively quiet space that is free of distractions and interruptions, such as bells and announcements. Boys need this sustained time dedicated to independent reading and writing to internalize the ideas that arise from their reading, to “find out what they think” about what they have read.

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<td><strong>NJSLSA.W.1.</strong> Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.</td>
<td>Organize ideas into a specific structure in which ideas are logically grouped to support the writer's purpose</td>
<td>Using the novel <em>Bud, Not Buddy</em> by Christopher Paul Curtis teachers will provide opportunities for students to develop an opinion essay.</td>
<td>The teacher will allow students to select their own text and topic for their opinion essay.</td>
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<tr>
<td><strong>SLO W 5.1</strong> Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</td>
<td>Logically order reasons that are supported by facts and details</td>
<td><em>Bud, Not Buddy</em> by Christopher Paul Curtis teachers will provide opportunities for students to develop an opinion essay.</td>
<td>The teacher will provide students with multiples opportunities to use graphic organizers individually and in pairs.</td>
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<td></td>
<td>Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically)</td>
<td></td>
<td>The teacher will allow students to design a step-by-step process for creating an opinion essay.</td>
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<td></td>
<td>Provide a conclusion or section related to the opinion presented</td>
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**Mathematics**  
**Grade 5**

**Theory:** The more learning is project-driven and kinesthetic, the more boys' bodies will be engaged in learning—causing more information to be retained, remembered, and displayed on tests and assignments. Also, when teachers use manipulatives, pictures, and graphics more often (even well into high school), boys produce responses with more detail, retain more information, and get better grades on work across the curriculum. Their attention follows their hands. Encourage them to draw sketches or diagrams of what they are hearing in a lesson, or when doing a sheet of math problems, teach them to point to each problem they come to. Let them use flashcards with information they are learning.

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| SLO #2: Show that the volume of a right rectangular prism found by counting all the unit cubes is the same as the formulas $V = l \times w \times h$ or $V = B \times h$. | Project-Driven and Kinesthetic: Classroom methodology includes project-based education in which the teacher facilitates hands-on, kinesthetic learning and is strategic about using manipulatives. In this lesson, students will be faced with several real-life and mathematical situations for which volume can be found. This lesson includes hands-on demonstrations (i.e. "packing" a right rectangular prism with cubic centimeters or inches) and work with mathematical models. When introducing volume, using whole numbers as dimensions makes | **Volume Tools**
http://www.mathsisfun.com/definitions/volume.html
http://illuminations.nctm.org/ActivityDetail.aspx?ID=6 | **What is Volume?**
1. Prior to this lesson gather as many real-world right rectangular prisms that you can find. Examples could include shoeboxes, video game cases, cereal boxes, bricks, tissue boxes, and/or Rubik's Cubes. Strive to have at least one that has an opening (i.e. a shoebox and a brick are great, but two bricks are not ideal). If possible, collect blocks that are either 1 cubic inch or 1 cubic centimeter (cubic inches are easier for the lesson that
Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.

| a great deal of sense, especially when demonstrating with actual cubes. However, it is also a good idea to use measurements in decimals, both because the real-world includes many non-whole number measurements, and to reinforce operations with decimals. Students could also be given measurements that are not all the same unit to practice metric conversions. After initial teaching, the cubic inches and rectangular prisms could be added to a measurement center. Students could explore volume at their own paces, measuring rectangular prisms and when applicable, checking the volume by packing them with the cubes. | follows). Check with your math specialist or early education teachers if you do not have any.

2. Begin by reviewing the definitions of perimeter and area. Also review the units one uses to measure area (i.e. square units), and why we call them “square units”. Tell students that these both describe 2-dimensional objects. Ask students how we can describe the measurements of a 3-dimensional shape (for this purpose, I will use a shoebox). Students will likely volunteer length and height and may volunteer width and/or volume. Tell them that just like we have area and perimeter to describe aspects of 2-D objects, we can describe the volume of a 3-D object.

3. Tell students that volume is the amount of a space a 3-D object takes up, and that just as we describe area in terms of
square units, we describe volume in terms of cubic units. Display the cubic inch or centimeter, if you have one. Measure the cubes dimensions to underscore why it is called a cubic inch or centimeter.

4. Ask students how we find the area of a square or rectangle (answer: length x height). Ask students if they can make an educated guess about how we find the volume of a rectangular prism, such as a shoe box (answer: length x width x height). Tell students that objects that we can hold have these three qualities; this is what we mean when we say, “three dimensional.” Tell students that what you call length, width, or height doesn’t really matter; demonstrate by rotating the rectangular prism.

5. Use a ruler to measure the dimensions of a rectangular prism (in the model lesson, an empty of plastic sandwich bags was used). Round
measurements down to the nearest inch (or centimeter, if using cubic centimeters). Have students calculate the volume (e.g. 60 cubic inches).

6. Ask students to predict what will happen if you begin packing cubic units into the rectangular prism. Students should respond that you will be able to pack the number of cubic units you found for the volume. Demonstrate that this is the case.

7. You may want to repeat this with one or more additional rectangular prisms. 8. Ask students to identify real-world situations where the volume or rectangular prisms must be known. Some examples could include swimming pools, aquariums, packaging, and shipping. With the students, create reasonable scenarios.
**Mathematics**  
**Grade 5**

**Theory:** *Making reading and writing relevant for boys*- Storytelling humanizes mathematics, where students can relate to mathematics at a personal level. Humanistic mathematics involves interdisciplinary connections between mathematics and other worlds of thought and methods of learning (Tennant, 2014). This humanistic approach to education may allow for one to develop human values, self-confidence, self-values, and gives room for self-reflections while at the same time it may increase awareness of others’ need, which may result in a sense of belonging in mathematics for students.

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| SLO #7: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. | Humanistic Mathematics: Storytelling is a fundamental unit of transferring knowledge and in mathematics makes learning more accessible, where students are more engaged with their learning. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions and | The Wishing Resources  
- Paper  
- Pencil  
- visual models  
- **Thinking Blocks**  
[Links to an external site.](online resource, pictured) | **The Wishing Club**  
Pattern blocks make great fraction manipulatives, but they can be limiting since the imply part to whole more often than part to set (or group). It is necessary for students to have multiple models for fractions to facilitate flexibility in representations and computation.  
Read the story **The Wishing Club**, to your students, or if the book is not available, set up the problem by telling a story of four children who wished upon a star:  
*The first boy was 4 and he wished for a dollar, but only received a quarter.*
For example, recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.

**NJSLA: 5. NF.A.2**
Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

| make reasonable estimates of them. |
| Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: fraction, equivalent, addition/ add, sum, subtraction/subtract, difference, unlike denominator, numerator, benchmark fraction, estimate, reasonableness, and mixed numbers. |
| Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this |
| **Fraction Action** (print resource) |
| **http://www.mathook.com/math/skill/fractiongames.php** |

**His 2-year-old brother wished for a cookie, but only got half. Their 8-year-old twin sisters also received smaller parts of their wishes.**

(This may be a good time to set up a table with your students to see if they can find the pattern.)

Can they combine their parts to get a whole wish? Can they combine wishes to get a whole pet? They must be careful and make sure they’re correct (who wants half of a puppy?).

Show how you think they can get a full wish granted.

Allow pairs of (or small groups of) students to puzzle over the problem. Listen for students making sense of the context.

Are students using manipulatives and/or making models. Are students using models that are easily broken into fractional parts?

Look for students who are relying heavily on models and manipulatives to solve the problem. Everyone should
Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: fraction, numerator, denominator, operations, multiplication/multiply, division/divide, mixed numbers, product, quotient, partition, equal parts, equivalent, factor, unit fraction, area, side lengths, fractional side lengths, scaling, comparing.

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<th>is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.</th>
<th>create a model for the problem as well as use equations, but during the closing part of the lesson, allow some of the students who relied heavily on manipulatives to share first. Allow students who used more abstract thinking (but who also model the problem and solution) to share last.</th>
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Below are prompts for applying rigor in your classroom. They may support small group instruction or whole group collaborative investigations.

- **Minutes and Days**  (Links to an external site.) (Illustrative Mathematics)
- **Least Quotient**  (HCPSS-adapted print resource)
- **Greatest Quotient**  (HCPSS-adapted print resource)
- **Write and Solve a Division Problem**  (HCPSS-adapted print resource)
- **Summer Reading**  (HCPSS-created task)
- **Tomato Tomato**  (3 Act Task, G.Fletcher)
**Mathematics**  
**Grade 5**

**Theory:** The more learning is project-driven and kinesthetic, the more boys' bodies will be engaged in learning—causing more information to be retained, remembered, and displayed on tests and assignments. Also, when teachers use manipulatives, pictures, and graphics more often (even well into high school), boys produce responses with more detail, retain more information, and get better grades on work across the curriculum.

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| **SLO #9:** Round decimals to any place value. | **Project-Driven and Kinesthetic:** Classroom methodology includes project-based education in which the teacher facilitates hands-on, kinesthetic learning and is strategic about using manipulatives. Teachers can use the following interactive videos to help teach rounding decimals to any place value.  

**Round decimals to the nearest whole number:** [https://learnzillion.com/lesson_plans/5889-round-decimals-to-the-nearest-whole-number](https://learnzillion.com/lesson_plans/5889-round-decimals-to-the-nearest-whole-number)  

**Round decimals to the nearest tenth:** | **Creating to Scale Planet 2D Models**  
- Graph and Construction Paper  
- Markers  
- Tape  
- Ruler/Tape Measure  
Student astronauts explore science and math that is out of this world! The students will be able to convert between centimeter and meter measurements, draw the circumference of Earth using a to scale radius and measure, to scale, distance from the sun in meters.  

Consider these astronomically enormous astronomical facts:  
- 108 Earths would fit in Jupiter's red spot. |
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<td>The students should then be split into small groups to convert between centimeters and meter measurements.</td>
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| - It took a space probe 9 years to get to Pluto.  
- Earth passes Mars every 26 months.  
- Jupiter rotates on its axis a full rotation every 9.9 (round that to 10) hours.  
- Jupiter is more than four times the distance from the Sun than Earth.  
- Temperatures between planets can range 400°. |
## Mathematics
### Grade 5

**Theory:** Teachers increase the use of graphics, pictures, and storyboards in math-related classes and assignments. When teachers use pictures and graphics more often (even well into high school), boys write with more detail, retain more information, and get better grades on written work across the curriculum. Teachers should provide repeated opportunities for students to play games, then let the mathematical ideas emerge as students notice new patterns, relationships, and strategies.

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<tr>
<td>SLO #10:</td>
<td>Interactive Graphic Lessons</td>
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| Tile a rectangle with unit fraction squares to find the area and multiply side lengths to find the area of the rectangle, showing that the areas are the same. | This standard call for students to translate a comparative situation into equations and then solve. Teachers use interactive lessons to engage students by making the mathematics come alive through graphics, as a guided investigation of each essential question, and maintain the cognitive demand. Multiplying fractions by whole numbers is an extension of a 4th grade standard. Students worked with models to solve problems involving fractions and whole numbers last year. | - Computer  
- Paper  
- Pencil  
- Vocabulary Visual | Students use rulers to estimate the area of their desks to the nearest whole inch. Ask the students to estimate because the purpose of the warm-up is to review the concept of area (not measuring to a fraction of an inch). Student share their measurements and a few possible estimates are recorded on the board. After the warm-up, students are presented with the question of the day: |

### SLO #10:

NJSLA:5. NF.B.4b

Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side...
| lengths to find areas of rectangles and represent fraction products as rectangular areas. | Spend time transitioning students' thinking by working with models at the beginning of this lesson. The purpose for this is three-fold.  
  - First, multiplying fractions by whole numbers is an important foundational piece of multiplying fractions.  
  - Second, connecting students with their prior learning experience allows for them to connect these pieces. You may want to help the students make connections between concepts rather than learn each in isolation.  
  - Additionally, by starting the lesson with modeling, students who did not master this in fourth grade will experience additional tangible opportunities to work with manipulatives. All students benefit from deepening their understanding of a concept through hands on experiences. | • How would we find the area of the desk if we were not estimating?  
During the lesson, students practice finding area of various rectangles with side lengths that are mixed numbers.  
Students work in pairs to find the area of various rectangles.  
This provides students with additional practice of multiplying mixed numbers as well as a review of finding area. Maintaining high expectations for all students increases motivation and effort.  
Circulate from group to group answering questions and checking student progress. |
References

(i.e. scholarly journals)