

# *Instruction matters!*

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## Time on Task

A newsletter for middle school math teachers addressing best practices

According to a survey conducted by the American Association of School Administrators, teachers identify student discipline as the single greatest factor that decreases time on task in the classroom. Generally, teachers with well-managed classrooms, have fewer disciplinary problems. These classrooms typically have teachers who have established rules and procedures are in the classroom when the students arrive, and begin class promptly. They reduce the “wear and tear” on themselves and students by establishing procedures for make-up work, they arrange their room to accommodate their teaching philosophy and style, and they develop routines that increase overall efficiency. The benefits of establishing these classroom procedures and routines become apparent as the total time on task approaches the allocated time.

To cut down on disciplinary problems and focus on learning, rather than starting class with a warm-up, teachers should start class immediately by being in the front of the room reviewing recently learned material. A suggestion might be to quickly review the material taught the day before by going over one or two problems from the previous day’s student notes or homework assignment to refresh their memory. Quickly reviewing definitions, formula, or procedures. Teachers then might briefly explain how that material will be used as a building block in today’s lesson. **The review should be quick, crisp, focused and with purpose.**

Beginning the class this way should also cut

down on the time needed to address homework problems.

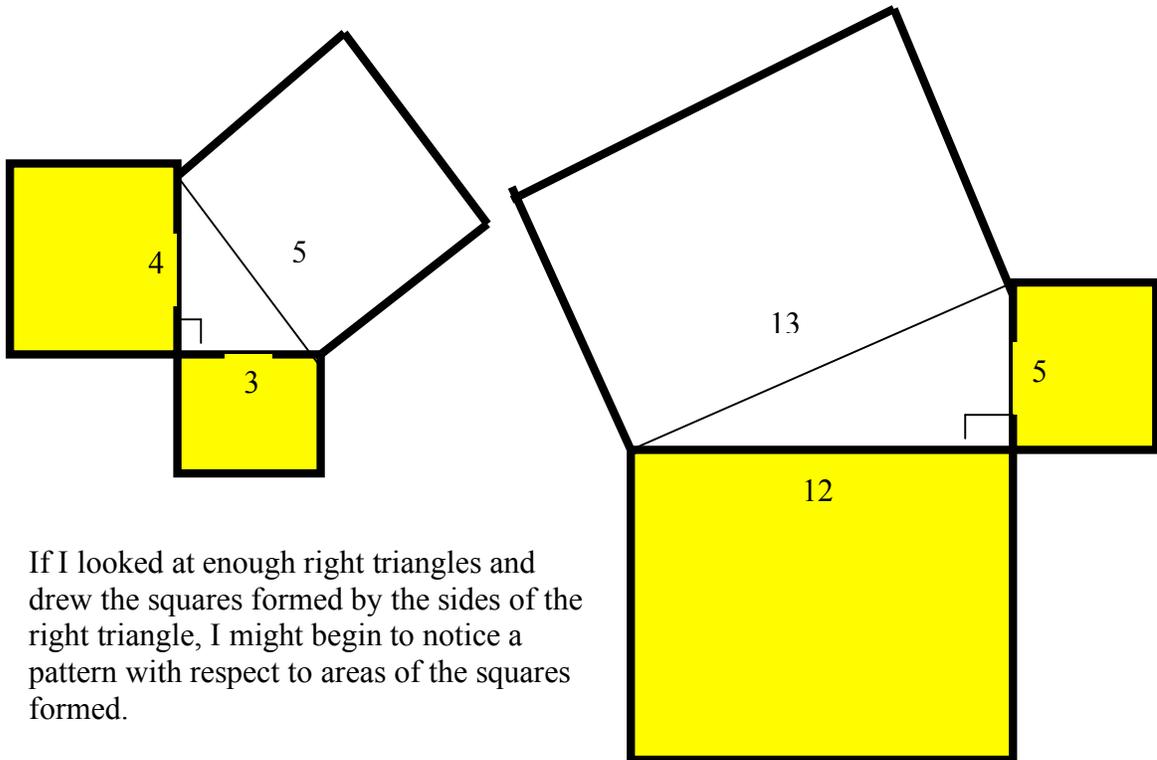
A second review should be scheduled toward the end of the period, after the close of the day’s lesson. This review should address long-term knowledge. That might include: basic skills, important formulas, facts, procedures, definitions, strategies, and deficiencies. This review is designed to place into long-term memory those items that all students should know at the completion of the school year. These reviews are important because they require students to revisit information that will reinforce their memory.

The second review period also allows teachers an opportunity to better prepare their students for high stakes tests such as the HSPE, ACT and SAT by addressing the knowledge and skills needed for success on those tests. That time can be used to reinforce memory as well as address known student deficiencies. The material being reviewed should be based upon student performance and may not be part of this year’s curriculum.

Starting the class immediately and ending the class period by being up in front of the students with a defined focus on learning maximizes instructional time and clearly signals students that it is important for them to maintain knowledge over time to be successful on high stakes tests.

You should not begin without a sense of urgency or end it by having students preparing to leave or walk to the door. That’s the wrong message!

The hanlonmath website contains content, strategies and resources that you can easily download for use in your classroom - free.



If I looked at enough right triangles and drew the squares formed by the sides of the right triangle, I might begin to notice a pattern with respect to areas of the squares formed.

Notice in both right triangles, you would consider more examples with your students, the area of the square formed by the hypotenuse is equal to the sum of the areas of the squares formed by the two legs ( $5^2 = 3^2 + 4^2$  and  $13^2 = 5^2 + 12^2$ ).

That's an interesting pattern. If I examined enough right triangles, I would see that pattern with respect to the areas of the squares formed is consistent. That would lead us to believe, not a proof, that area of the square formed by the hypotenuse is always equal to the sum of the areas of the squares formed by the two legs.

Generalizing that using letters, if  $c$  was the measure of the hypotenuse and  $a$  and  $b$  were the measures of the two legs, I would have  $c^2 = a^2 + b^2$ .

That generalization would lead to the Pythagorean Theorem. That theorem states: **In any right triangle the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.** Most of us know that as  $c^2 = a^2 + b^2$ .

Notice the theorem does not address the areas of squares – just the sides. The reason, the square of the length of a side of a triangle is the area of the square formed by that side.