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# Lesson 7

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## Academic Skills

**A**cademic skills refer to content knowledge learned in school. Some academic skills, such as algebra, are cumulative. Students might learn other academic skills once and then not revisit them unless they are in an area of interest, such as specific events in history. This lesson focuses on helping students develop academic skill mastery for cumulative knowledge building.



### VITAL VOCAB

***automaticity:*** Ability to know and recall information without effort, computing, or deliberating. Automaticity is usually the result of repetition and practice.

***complex reasoning:*** Ability to analyze information and solve problems.

***fluency:*** Ability to read or produce an answer to a problem quickly, accurately, automatically, and expressively.

***spaced repetition:*** A learning and memorization technique that incorporates leaving time between repeated review of previously learned material to help your brain practice, absorb, and recall information.



## TEACHER TAKEAWAYS

- Certain foundational skills are important for students to have before they can master a subject and use them for higher-level thinking. Other skills and knowledge will be important to know, but it's not essential that students have automaticity with them. Examples of foundational skills include math facts and sight words. Examples of skills not requiring automaticity are details in a novel or subject-specific vocabulary in non-core topics.
- If you find that students are struggling to learn a new skill, it is important to go back and consider if they have automaticity in the prerequisite skills or if the difficulty is in their complex reasoning (a cognitive skill).
- For students who do not seem to be living up to potential or who do better in one subject over another, this can be a good opportunity to understand why these differentials exist. Are key foundational skills missing that are interfering with the student's performance or growth, or is there a different type of underlying challenge (e.g., cognitive or personal)?



## STUDENT TAKEAWAYS

- Much of what you will learn in school is cumulative. Therefore, it is important that if you do not understand something you take the time to learn it, even if the test has passed. In many cases, you will need to build on that knowledge for future classes.
- Spaced repetition and practice are essential to learning and remembering foundational skills. Even if you learned something easily, it is important that you continue to practice and reinforce it so you can recall that information when you need it. Remember what you learned about neuroplasticity in Lesson 1.



### MINDPRINT STRATEGIES FOR STUDENTS

- Interleave Worked Problems (<https://my.mindprintlearning.com/toolbox/toolbox-demo/product/11910>) (T)
- Spaced Repetition (<https://my.mindprintlearning.com/toolbox/toolbox-demo/product/11427>) (S, T)
- Math Study Skills and Instructional Strategies ([https://my.mindprintlearning.com/toolbox/uid/search?name=math&academic\\_topics=&cognitive\\_skills=&interests=&product\\_types=11.13&age\\_range\\_min=3&age\\_range\\_max=21&order\\_by=bestfit\\_score+desc&uses\\_recommendations=&pills=&page=1](https://my.mindprintlearning.com/toolbox/uid/search?name=math&academic_topics=&cognitive_skills=&interests=&product_types=11.13&age_range_min=3&age_range_max=21&order_by=bestfit_score+desc&uses_recommendations=&pills=&page=1)) (S, T)
- Reading Study Skills and Instructional Strategies ([https://my.mindprintlearning.com/toolbox/uid/search?name=reading&academic\\_topics=&cognitive\\_skills=&interests=&product\\_types=11.13&age\\_range\\_min=3&age\\_range\\_max=21&order\\_by=bestfit\\_score+desc&uses\\_recommendations=&pills=](https://my.mindprintlearning.com/toolbox/uid/search?name=reading&academic_topics=&cognitive_skills=&interests=&product_types=11.13&age_range_min=3&age_range_max=21&order_by=bestfit_score+desc&uses_recommendations=&pills=)) (S, T)



### A CLOSER LOOK

- Articles on Math & STEAM (<https://mindprintlearning.com/article/topics/academic-skills/math-stem>)
- Articles on Speaking, Writing, & Spelling (<https://mindprintlearning.com/article/topics/academic-skills/language-speaking-writing>)
- Articles on Reading (<https://mindprintlearning.com/article/topics/academic-skills/reading-vocabulary>)
- Let's Not Forget the Forgetting Curve; Mindprint Learning (<https://mindprintlearning.com/blog/the-forgetting-curve/>)



## LESSON ACTIVITIES

### Direct Instruction

Overview of Academic Skills and Learning (M, H)

#### Teacher Background

Communicate the importance of building automaticity of foundational skills, using spaced repetition to ensure retention. Improved automaticity provides students with more mental energy for complex reasoning tasks.

#### Teacher-led Discussion

Begin with a quick explanation of academic skills so that students can understand how these skills differ from cognitive skills.

*Academic skills are what you learn in school.*

*Much of what you learn in school is cumulative. Be aware of what you did not understand and make sure you take the time to learn it or ask for help, even if the test has passed. Otherwise, it will be harder when that information is pertinent in other contexts.*

Show and explain the Forgetting Curve. Remind students that even if they understand and learn new material easily, it does not guarantee they will remember it when they need it.

*The Forgetting Curve shows that most people begin to forget in just 20 minutes. So if you feel confident that you remember the material 15 minutes after you studied, see what you can recall after 2 hours or the next day.*

*Consistent practice and repetition is essential to learning and remembering information. We do this most effectively through spaced repetition, or repeated study/review of material, leaving time in between studying—the opposite of cramming!*

### Student Activity

Academic Skills Beyond Grades: Help students think about what they truly enjoy learning rather than depending on their grades to tell them. (M, H)

#### Student Activity

Ask your students questions from past tests. Let them compare their answers on the original test to the most recent one to appreciate how we all forget. This will reinforce the importance of ongoing repetition. (M, H)

**Student Activity**

Create a Study Schedule for a test the following week. After the test, discuss whether spaced repetition was effective. (M, H)

**Student Activity**

Use a New Strategy: Have students select up to three strategies from their Personalized Toolbox for either Math or English and add those strategies to their Personal Learning Plans. After a week of using the new strategy in assignments and homework, discuss whether this new strategy is working. Continue this throughout the course. (M, H)

**Coaching**

Interleaving: Always include questions from previous tests or assignments mixed in within the new material. (E, M, H)

## **STUDENT ACTIVITY:**

### **Academic Skills Beyond Grades**

**Name:** \_\_\_\_\_

Grades rarely tell the entire picture of what you know or what you are capable of. Answer at least one of the following questions without referencing past grades.

Is there a subject or topic that is tough for me? Do I want to improve? Why?

Is there an area or subject I'm very interested in? What do I want to learn?

Is there a topic I understand and yet don't do as well as I expect in class or assignments? Why do I think that is?

# STUDENT ACTIVITY:

## Study Schedule

Name: \_\_\_\_\_

Write your study plan for how you will prepare for the test.

DAY	WHAT I WILL COVER	TIME NEEDED	COMPLETE
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

Notes/Reflections:



Figure 15: Hidden emotions