

**Target the Question** is built on the science of learning. The research behind the tools used in Target the Question supports the effectiveness of using it daily in your classrooms.

### Retrieval-

There are 3 stages to learning.

1. Encoding, where we get information into students heads
2. Storage, where we HOPE information is kept
3. Retrieval, where we pull information out

We often focus on encoding and neglect retrieval. Research shows that after 48 hours students forget 80% of what they have learned if they are not given the opportunity to retrieve the new information. Ouch, they only remember 20% of what we have taught. Wait! It gets worse. After 30 days students will have forgotten 97% - 98% of what they have learned, if they have not retrieved that information. (Figure 1) You work too hard to settle for students only remembering 2% - 3% of what you've taught. Target the Question ensures your students are given opportunities to retrieve learning daily.

Research supports that providing your students with retrieval practice opportunities, like Target the Question, greatly decreases test anxiety. Students become confident with content and therefore less anxious when it comes time to perform. Your students will be ready to shine. (Figure 2)

### Spiraling/Spaced Practice-

When students encounter information repeatedly in one session, it quickly becomes familiar and creates an "illusion of knowing." Research shows that spacing/spiraling increases long-term learning and decreases forgetting. Spiraling content gives students the opportunity to engage in retrieval practice multiple times over time. Target the Question's spacing prepares students for HIGH scores and INCREASES knowledge and retention. (Figure 3)

### Interleaving-

Research shows that learning increases when we mix up concepts we are learning. Interleaving, a strategy of mixing things up, gives teachers and students a realistic picture of where they are in their understanding. Blocked practice deceives teachers and students! If students only practice concepts in blocked practice, they will struggle during a test when they experience interleaved problems. (Figure 4)

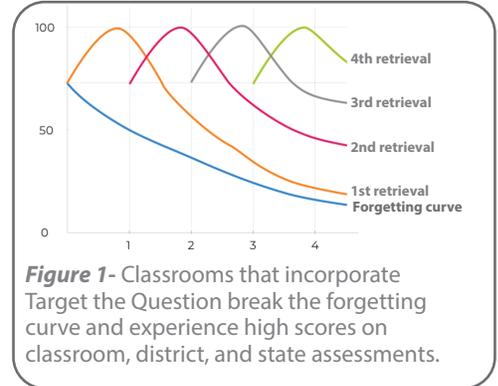
The interleaved concepts built into Target the Question force students to determine and retrieve which strategy or approach works best for the problem at hand.

### Feedback-

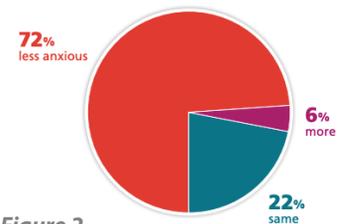
According to cognitive scientist Pooja Agarwal, there are two common metacognitive illusions: the illusion of mastery and the illusion of confidence. Students' confidence-accuracy mismatches (incorrect answers with high confidence and correct answers with low confidence) can be remedied with feedback.

Quality and immediate feedback has shown to increase learning by a letter grade!

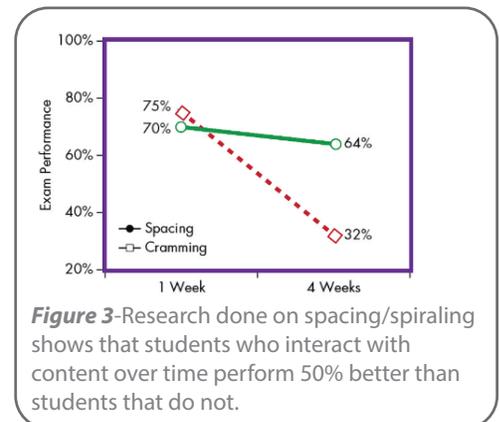
Target the Question allows daily feedback so students are not fooled by the illusion of mastery. This feedback gives students an honest evaluation of their strengths and weaknesses.



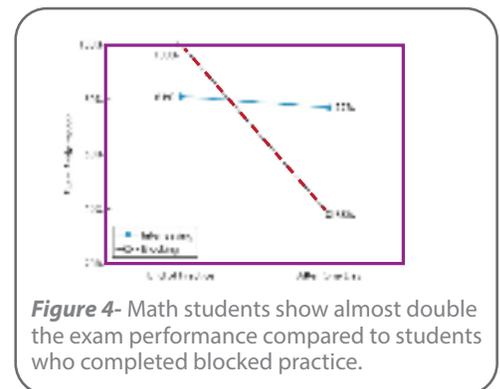
**Figure 1-** Classrooms that incorporate Target the Question break the forgetting curve and experience high scores on classroom, district, and state assessments.



**Figure 2-**



**Figure 3-** Research done on spacing/spiraling shows that students who interact with content over time perform 50% better than students that do not.



**Figure 4-** Math students show almost double the exam performance compared to students who completed blocked practice.

### Build Critical Thinking Skills

The critical thinking skills required in these problems is rigorous! It pushes my students to be thoughtful and sift through information to determine what is necessary and what is extraneous. I wish there was a way to stay in my internet browser window when I select a week. I don't like that another window opens with the problem in it.

Grapevine-Colleyville ISD

### No TEKS Left Behind

Target the Question is 100% aligned to the TEKS! I don't have to worry about not teaching a standard because Lone Star Learning has them all covered. I highly recommend adding this program to your day!

TISD 2nd Grade Teacher

### Builds Problem-solvers

I love Target the Question because it teaches my students and helps them look at what the question is asking and to only look for what they need. This is hard for students to do because they want to use all the numbers.

Megan

### No More Plug and Chug

I love that it is everyday practice of math problem-solving. I appreciate how the problems increase in difficulty with each week. I feel that this program is beneficial in helping students learn and find keywords within a multi-layered word problem. The color system allows students to use highlighters to identify important information and keeps students engaged. It also helps students learn how to differentiate between needed and unneeded information within a word problem.

Legacy-Christian

### 33 Point Gain

Everyday practice of math problem-solving. We took a sample math assesment last year and scored within the 54th percentile. This year we scored within the 87th percentile!

5th Grade Teacher

### 100% Passing

My students have learned to carefully read a problem and discern the needed strategy to successfully come to a solution. I credit this daily problem-solving opportunity to helping my class achieve 100% passing on the STAAR. They were equipped and ready to succeed.

SISD 4th Grade Teacher