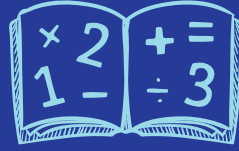


Lesson Internalization Protocol and Template



Simply using high-quality instructional materials (HQIM) doesn't guarantee that a teacher – or tutor, aide, or anyone supporting student learning – will teach them in a way that sets their specific students up to meet the ambitious goals listed in their state's standards. **To ensure students successfully engage with the materials in the ways outlined in the standards and the shifts, teachers must internalize lesson materials prior to teaching.**

Internalization describes the steps a teacher takes to intellectually prepare prior to teaching a unit or lesson. It includes analyzing the ways different components of the lesson support the learning goal and doing the work of students.

Teachers are busy and time is finite, which makes the following pitfalls common and appealing substitutes for internalization, but student learning suffers.

PITFALL 1

PRINT AND GO

Find the day's lesson, skim it over, press print, and teach.

Imagine...

You glance down at your teacher's guide and see that you are supposed to model the division problem $6 \div 3 = 2$ using a tape diagram. What on earth is that? You decide to tell students to use their calculators instead.

What's the impact?

Students don't develop the conceptual understanding they need to master grade level division standards leading to future difficulties mastering standards related to division.

PITFALL 2

NOTHING BUT THE ANSWER KEY

Find an answer key, put it on your clipboard, and teach.

Imagine...

The majority of your students get stuck on a place value question. You know the answer is on your key but since you haven't internalized you're not sure why they're struggling with this question. You decide to tell them to skip it.

What's the impact?

Students' misconception never gets addressed and it continues to be a point of confusion in class as students apply place values when comparing numbers and operating with decimals.



Succumbing to these pitfalls leaves us unprepared to teach and leaves students without the depth of understanding they deserve.

Lesson INTERNALIZATION helps in many ways:

- 1. Internalization prepares teachers to teach to the depth students need and deserve** to fully meet the standards. When you haven't internalized a lesson it's easy to fall back on, "I guess I'll just teach it the way I was taught it," even if that approach doesn't match the work the standard and objective call for or that is best for your students.
- 2. Internalization frees up teacher headspace.** Instead of figuring out what the next problem is and how to solve it in the moment, you have space to analyze student work and listen to their mathematical reasoning.
- 3. Internalization gives you the chance to identify when you may have gaps in your own knowledge** that you need to fill in order to give your students the support they need (and deserve). It's really easy to assume that because you are an adult you know how to do elementary math. However, teaching requires the development of specialized mathematical knowledge that is different from what the average person needs to use math in their daily lives.

So how do you internalize a lesson? Below are four simple steps you can take to be prepared to teach a lesson along with a template to support you in that internalization process and a completed example template for your reference.

What is INTERNALIZATION and what are the steps:



1 Read and annotate the entire text of the lesson

- **WHY:** To familiarize yourself with the representations/models, problem types, and strategies/procedures that students will learn and use.
- **HOW:** While reading, make a running list of representations/models, problem types, and strategies/procedures.

2 Connect to the culminating task of the unit

- **WHY:** To understand how the work in this lesson sets students up for success on the unit assessment
- **HOW:** After annotating, look back at the lesson standard, lesson objective, and unit assessment. Consider how different elements of the lesson support the goals of the unit.

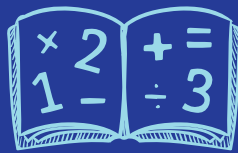
3 Familiarize yourself with the culminating task of the lesson and analyze opportunities for students to make meaning throughout the lesson

- **WHY:** To understand the nature of the work students are expected to do and how they will demonstrate mastery.
- **HOW:** Complete the exit ticket, discussion questions, and problems from the POV of a student using the approaches in your annotations. Consider what students will need to know and do by the end of the lesson and which parts of the lesson are especially important for getting them there.

4 Anticipate areas where students may need support

- **WHY:** To understand the trajectory of student learning throughout the lesson and anticipate where students might struggle.
- **HOW:** Make a list of the areas where students may struggle and why. As you explain why students may struggle, consider the new complexities of each problem.

Lesson Internalization Template



Below is a template you can use to internalize a lesson followed by a completed example. Access your own editable copy [here](#).

LESSON # AND TITLE:

1 Read and annotate the entire text of the lesson

Annotate:

While reading, make a running list of representations/models, problem types, and strategies/procedures.

Representations and Models

Problem Types (see p. 88–89 of the standards)

Strategies and Procedures

2 Connect to the unit's culminating task

Connect:

After annotating, look back at the lesson standard, lesson objective, and unit assessment. Then, reflect on how the representations/models, problem types, strategies, and procedures you noted support the goals of the lesson and unit.

Lesson Standard:

Lesson Objective:

Link to your unit assessment and list the assessment items from the unit assessment that this lesson is designed to teach toward (e.g., items 1, 8, 10).

What is the purpose of using these particular representations/models, problem types, strategies, and procedures in today's lesson? What are students learning from the lesson that will support them in mastering the standard, objective, unit goals?

3A Familiarize yourself with the culminating task of the lesson

Familiarize:

Do the exit ticket from the point of view of a student. Use the representations/models, strategies, and procedures found in the lesson.

Analyze:

Reflect on what you had to know and do in order to complete the exit ticket. What are the 1-3 most important things students have to know and/or be able to do in order to successfully complete the exit ticket?

Know / Do	Why is this important?

3B Analyze opportunities for students to make meaning throughout the lesson

Familiarize:

Complete the problems/tasks from the POV of a student. Jot down an exemplar response to each discussion question.

Prioritize:

Think back on the student work you just completed. What are the 1-3 most important problems, tasks, and/or discussion questions for students to complete if they are to be able to KNOW and be able to DO the things you listed in the row above?

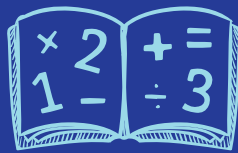
Priority Problems/Tasks/Discussion Questions	Why are these important to prioritize?

4 Anticipate areas where students may need support

#	Tasks/Problems where students may need additional support and why

Lesson Internalization Template

(Completed Example)



LESSON # AND TITLE: Module 1 Topic B, Lesson 4¹

High-quality instructional materials can come from a variety of sources. In this completed template, we use materials from Eureka Math. However, the process described can be used with other high-quality instructional materials.

1 Read and annotate the entire text of the lesson

Annotate:

While reading, make a running list of representations/models, problem types, and strategies/procedures.

Representations and Models

- Draw Tens and Ones
 - Linking cubes
 - Quick tens (vertical line representing 10, dots representing ones)
 - Number on a place value chart
- Make the Next Ten Within 100
 - Rekenrek
 - Number sentence
- Take Out One:
 - Number bond to show decomposition
- Application Problem:
 - Tape diagram
 - Number bond to show decomposition
 - Number sentence
- Concept Development
 - 5- and 10- group columns with circles to show one addend and xs to show the other
 - Number bond to show decomposition
 - Number sentence

Problem Types (see p. 88–89 of the standards)

- Add to, result unknown
- Put together, total unknown

Strategies and Procedures

- Make a 10 to solve addition problems with a 9, 8, or 7s in the ones place

¹ Retrieved from EngageNY [here](#)

2 Connect to the unit's culminating task

Connect:

After annotating, look back at the lesson standard, lesson objective, and unit assessment. Then, reflect on how the representations/models, problem types, strategies, and procedures you noted support the goals of the lesson and unit.

Lesson Standard:	Lesson Objective:
2.OA.B.2 Fluently add and subtract within 30 using mental strategies. By the end of 2nd grade, know from memory all sums of two one-digit numbers and related subtraction facts.	Make a ten to add within 20
Link to your unit assessment and list the assessment items from the unit assessment that this lesson is designed to teach toward (e.g., items 1, 8, 10).	
Assessment: Items 1a, 1d, 2a, and 3b ²	
What is the purpose of using these particular representations/models, problem types, strategies, and procedures in today's lesson? What are students learning from the lesson that will support them in mastering the standard, objective, unit goals?	
<ul style="list-style-type: none"> Standard: Being able to manipulate numbers to make them easier to work with is a core part of fluent, mental computation. The decomposition and "make a 10" strategy this lesson focuses on with single-digit addends will be a critical part of students' computation toolkit as they work up to fluent addition within 30 by the end of the year. Objective: Decomposition, or, breaking a number into smaller quantities to make it easier to work with, is the core of the fluency work in this lesson. The representations used in this lesson are all focused on making decomposition explicit for students. This helps them understand how and why the "make a 10" strategy works. For example, the rekenrek uses different spacings of beads to show how the same quantity can be broken apart in different ways. The number bond helps students track decomposition in a more abstract way. Unit Goals: Students are solving the same problem types they will encounter and using the same solution strategies they will apply on the unit assessment. The lesson is giving them a chance to build fluency with the strategy with smaller numbers (within 20) before they are asked to apply it in the context of larger numbers (within 100) later in the unit. 	

² Retrieved from EngageNY [here](#)

3A Familiarize yourself with the culminating task of the lesson

Familiarize:

Do the exit ticket from the point of view of a student. Use the representations/models, strategies, and procedures found in the lesson.

Analyze:

Reflect on what you had to know and do in order to complete the exit ticket. What are the 1-3 most important things students have to know and/or be able to do in order to successfully complete the exit ticket?

Know / Do	Why is this important?
Students need to know what number is needed to help the first addend "make a 10."	This will help them decompose the second addend.
Students need to know how to decompose the second number into two parts--the part that will help the first addend make ten and what's leftover--and how to represent this with a number bond.	This sets them up to do an easier addition problem ($10 + __$), one that can be solved mentally.
Students need to add to make a ten and then remember to add what's left over; the number bond helps ensure they don't forget this last step.	This step is where they calculate the correct answer.

3B Analyze opportunities for students to make meaning throughout the lesson

Familiarize:

Complete the problems/tasks from the POV of a student. Jot down an exemplar response to each discussion question.

Prioritize:

Think back on the student work you just completed. What are the 1-3 most important problems, tasks, and/or discussion questions for students to complete if they are to be able to KNOW and be able to DO the things you listed in the row above?

Priority Problems/Tasks/ Discussion Questions	Why are these important to prioritize?
Concept Development	<p>The "Concept Development" portion of this lesson is where students gain their first exposure to both the "make a 10" strategy and the chance to apply the "circles and x's" and number bond representations in the context of the strategy.</p> <p>The "Observing Patterns" questions help solidify the key features of the strategy for students before they are asked to apply it independently during the problem set. Skipping this section would mean students are unlikely to practice using the strategies and representations that are the focus of the lesson during the problem set.</p>

Priority Problems/Tasks/ Discussion Questions	Why are these important to prioritize?
<p>Page one of the problem set</p>	<p>Page one of the problem set provides direct practice for applying the “make a 10 strategy” and mirrors the format students will see on the exit ticket. It also mirrors the format of several of the unit assessment problems that include much larger addends. Therefore, a chance to practice the strategy with small numbers in this lesson will be essential.</p>
<p>Discussion question: Explain the strategy we used today. Can you think of another problem the “make a ten” strategy will help us solve?</p>	<p>After completing the problem set, this discussion question will help students solidify the core features of the “make a 10” strategy and help them think about why it was useful across all the different problems they just solved. This will mean they are well positioned to apply it independently on the exit ticket. The “Can you think of ...” question is an excellent check for understanding to gauge whether students are ready to move on to the exit ticket.</p>

4 Anticipate areas where students may need support

#	Tasks/Problems where students may need additional support and why
<p>9-12</p>	<p>For this set of the problems the result is given but an addend is not. They may be confused at first by the novelty of it in relation to the other problems they’ve solved. This is not something they had exposure to at any other point in the lesson and they may not know how the two problems in each box are related or how this section relates to the “make 10” strategy they’ve focused on throughout the lesson.</p>
<p>13-14</p>	<p>Word problems may be difficult for some if they struggle in making sense of the action in problem and translating it into a number sentence. Additionally, students will switch back to being provided both addends with the result unknown which may cause them to struggle after having done a problem set where one of the addends was unknown and the result was provided.</p>

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