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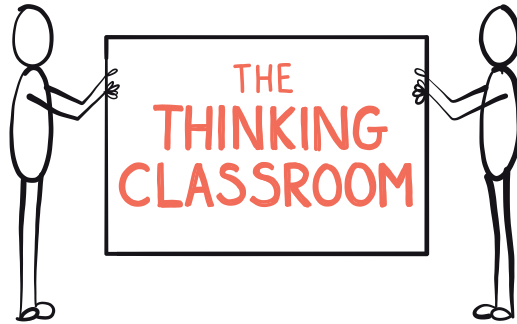
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# BUILDING THINKING CLASSROOMS IN MATHEMATICS

## 14 Practices for Enhancing Math Learning



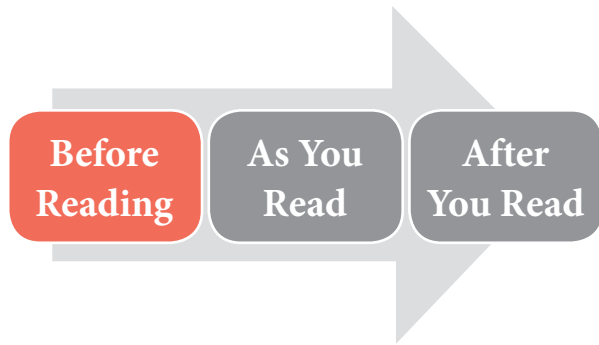
The book *Building Thinking Classrooms in Mathematics: 14 Practices for Enhancing Math Learning* is written in such a way that you can read the whole book before you begin to build your own thinking classroom. If this is how you choose to engage with the book, then Chapter 15 will provide the results of the research into the optimal sequence for implementation and which practices need to be implemented together. If you want to build your thinking classroom as you read each chapter, then the book is also written to accommodate that. If this is how you choose to engage with the content, I suggest that you read Chapters 1–3 and then implement all three of those optimal practices for thinking together. After that, you can implement each practice as you read about it. To help you along the way, each chapter ends with a *Try This* section where you are provided with some tips and tricks as well as thinking tasks that you can use to help initiate that thinking practice in your classroom.

Regardless of how you choose to engage with the book, this book study guide will help you to reflect on what you have read and how this relates to your current (and past) teaching practice, and it will prepare you to partake in discussions within a professional learning community (PLC). The study guide divides the reading of each chapter into three distinct phases: *before reading*, *as you read*, and *after you have read*. Before you read each chapter, take a moment to reflect on your own practice and the degree to which it fosters (or not) thinking within your classroom. As you read, engage critically with the chapter, take notes, pose questions, think about what implementation would look like, and anticipate where the challenges will lie. After you have read the chapter, discuss your critical engagement within your PLC, learn from others' reflections and ideas, and work through some of the shared challenges together.

If you wish to immediately implement what you read in each chapter, then doing so before or after your PLC meeting works equally well. If you implement before, you will have more to share with your peers. If you implement after, you will have the benefit of having collaboratively thought through some of your anticipated challenges.

In many ways, the ideal pacing through this book is set by the implementation path you choose to take. If you are implementing as you go, you will need about three weeks to implement the first three chapters together. After that, you will feel ready to implement a new chapter every one to three weeks, depending on how well your students are adjusting to the new thinking culture. If you are reading the book straight through before implementing, then the pacing will be determined more by how often your PLC meets. If you are willing to meet after every chapter, then one chapter per week will suffice. If you wish to meet less frequently, then you can estimate that Chapters 1–8 can be moved through at a pace of two chapters per week. The chapters do not take a long time to read, but there is a lot to think about. Chapters 9–15 have even more to think about, so the pace may need to slow to one chapter per week. If you are working through the book on your own, then move at a pace that allows you the time to pause and ponder the things that you read.

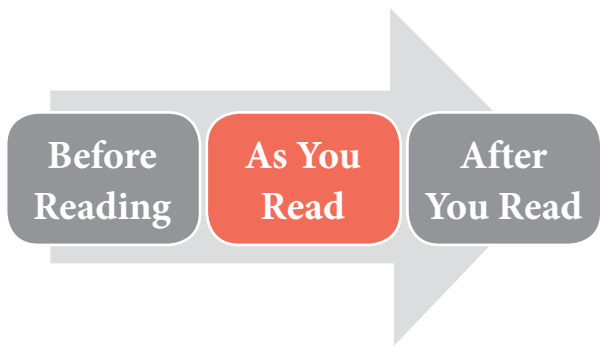
# INTRODUCTION



## Before Reading:

Before reading the introduction, reflect on the ways in which thinking manifests itself in your classroom.

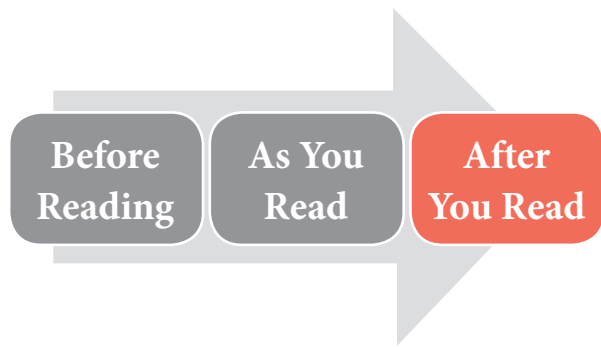
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. What does it mean for students to be thinking in a math classroom? What does it look like?</li><li>2. In what ways do your teaching practices require students to think?</li><li>3. Can you think of things you do in your teaching that takes away opportunities for students to think?</li><li>4. Can you think of ways in which students try to get out of thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about the introduction.

THOUGHTS ON THE INTRODUCTION			
Reading Notes	Page	I have already been thinking about (or doing) this.	I am wondering about . . .



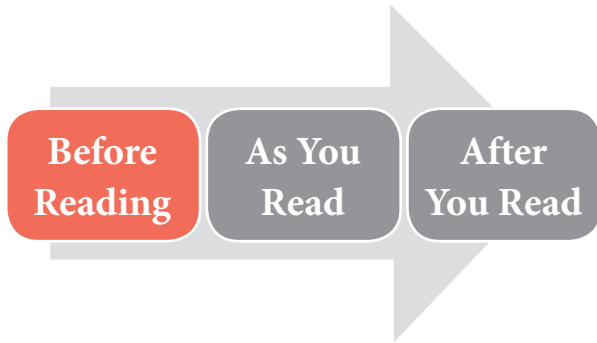
**After You Read:**

After you have read the introduction, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. Consider the studenting behaviors discussed in this chapter. Have you seen any of these behaviors in some of your students?</p> <p>2. What are your thoughts about the role of mimicking in the classroom and its relationship to learning?</p> <p>3. Consider the list of 14 practices. Is this list truly comprehensive? Can you think of parts of your teaching practice that do not exist on this list?</p>		



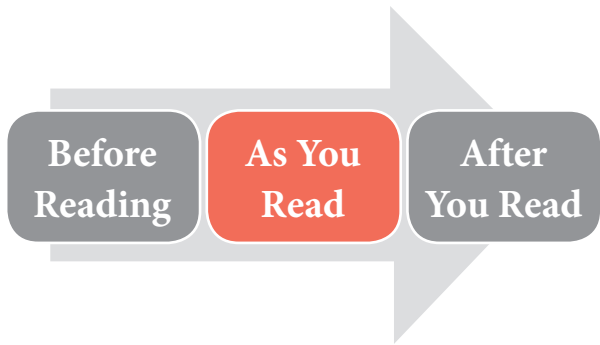
# CHAPTER 1: WHAT TYPES OF TASKS WE USE IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 1, reflect on the types of tasks you currently use and why you do so.

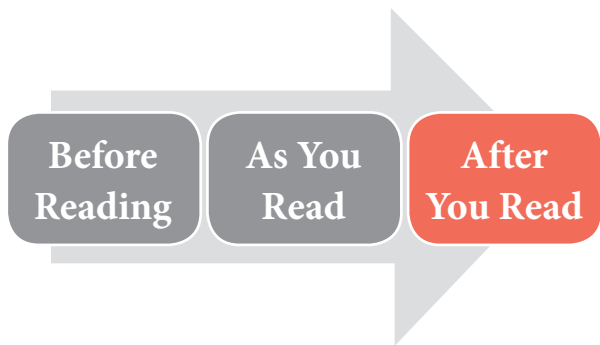
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about the types of tasks you currently use with your students. How would you describe them? Are they all of the same type, or do they fall into different categories?</li><li>2. Have the types of tasks you use with your students changed over time? Or do you want to change the types of tasks you use with your students? If so, why—what happened that prompted the change?</li><li>3. If you had no external pressure to deliver specific curriculum in a specific amount of time, what kinds of tasks would you use with your students?</li><li>4. Do the tasks you currently use encourage your students to think, or do they inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 1: What Types of Tasks We Use in a Thinking Classroom.

THOUGHTS ON CHAPTER 1: WHAT TYPES OF TASKS WE USE				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



**After You Read:**

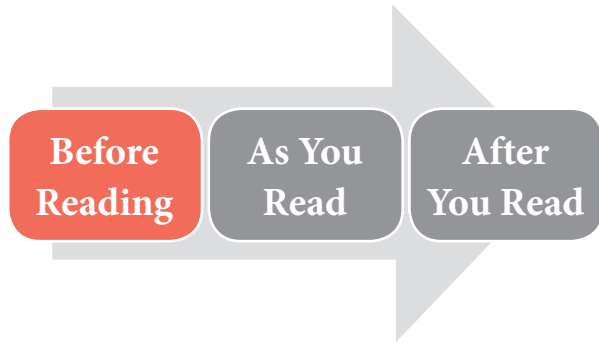
After you have read Chapter 1, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. The introduction mentioned that almost all students who mimic express that they thought this is what they were meant to be doing. Chapter 1 shares that one way in which students come to this conclusion is that their teacher showed them how to do something before asking them to try it on their own. What other ways may we be communicating that mimicking is what we want students to do—even if that is not what we want?</p> <p>2. This chapter included three examples (counting, adding decimals, and factoring quadratics) of how to script the introduction of a task so that we can ask students to think their way through a problem without first showing them how to do it. These examples are all predicated on the idea of asking the students a question about prior knowledge, then asking a question that is an extension of that prior knowledge. Consider some topics you have recently taught or are about to teach. What would scripts for these topics look like?</p> <p>3. In this chapter, it was shown that students perform better on scripted curricular tasks if they have first experienced three to five classes of working on highly engaging non-curricular tasks. How do you feel about giving up this time? What are the barriers for you to do this? What do you stand to gain? What do you stand to lose?</p>		





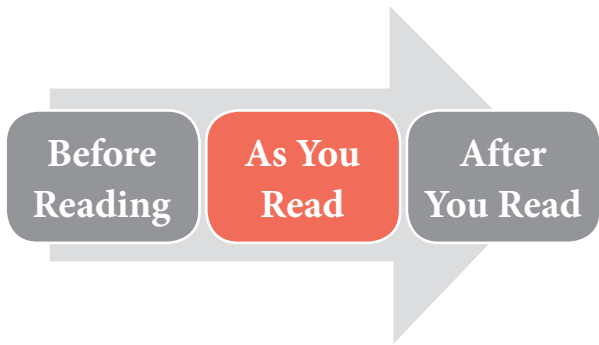
## CHAPTER 2: HOW WE FORM COLLABORATIVE GROUPS IN A THINKING CLASSROOM



### Before Reading:

Before reading Chapter 2, reflect on the ways in which you currently form collaborative groups and why you do so.

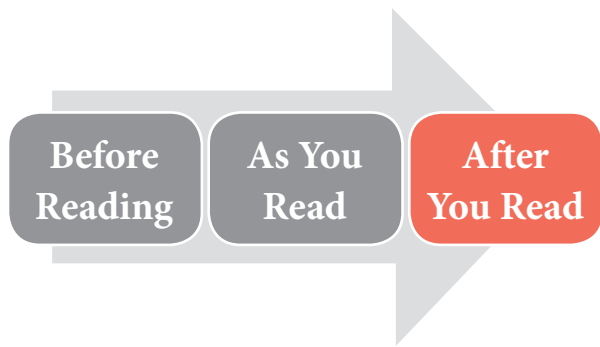
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about when and how you use collaboration in your current teaching practice. Why do you use collaboration—what are the benefits? What are the challenges?</li><li>2. How do you group your students? Why do you do it that way—who does it benefit?</li><li>3. Do you use different grouping methods for different tasks or activities or for different groups of students?</li><li>4. Has the way you group your students changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently group your students encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 2: How We Form Collaborative Groups in a Thinking Classroom.

THOUGHTS ON CHAPTER 2: HOW WE FORM COLLABORATIVE GROUPS				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



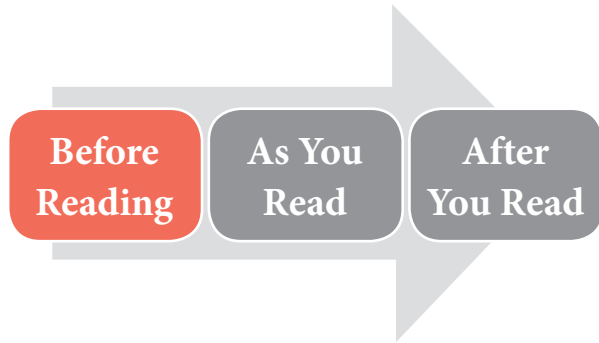
**After You Read:**

After you have read Chapter 2, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. What is the worst combination of your students that can come together in random groups? What is your perception based on?</li>   <li>2. How do you feel about the idea of students borrowing ideas from other groups? How does this align with your sense of what it means to be able to do mathematics?</li>   <li>3. How do your current ideas about differentiation align (or not) with the use of random groups?</li> </ol>		



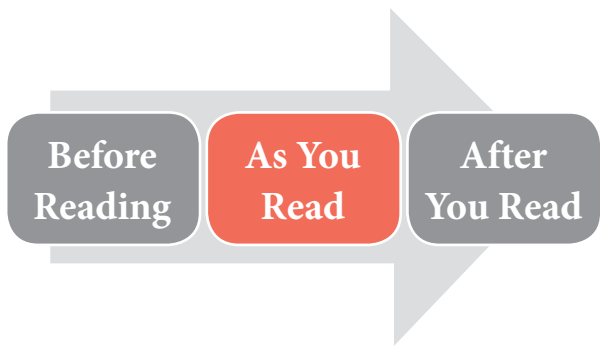
## CHAPTER 3: WHERE STUDENTS WORK IN A THINKING CLASSROOM



### Before Reading:

Before reading Chapter 3, reflect on where you have your students do their work and why you do so.

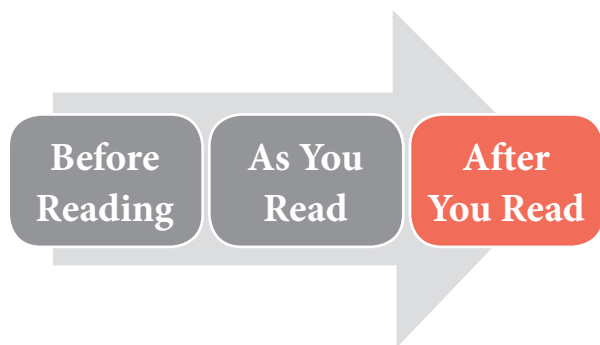
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about where you have your students do their work (either individually or collaboratively). Why is that where they do their work?</li><li>2. Has where you allow your students to work changed over time? If so, why—what happened that prompted the change?</li><li>3. Does where you currently have your students do their work encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 3: Where Students Work in a Thinking Classroom.

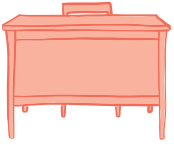
THOUGHTS ON CHAPTER 3: WHERE STUDENTS WORK				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



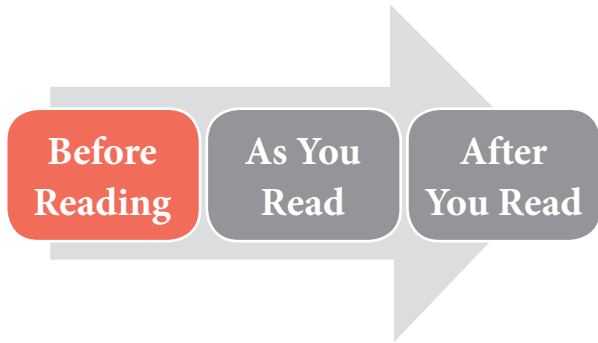
**After You Read:**

After you have read Chapter 3, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. What are your thoughts about the idea that sitting and writing in notebooks promotes, and rewards, mimicking behavior? Are there ways that you have seen this in your classrooms?</li>   <li>2. In <i>The Problem</i> section, you read about the notebook as a catch all—the place where we default to having students do their work. Think about all the different types of things you ask students to do in their notebooks. Which of these, other than doing thinking tasks, can you imagine having your students doing on vertical non-permanent surfaces?</li>   <li>3. Which strategy for moving the pen around did you like the best and why?</li> </ol>		



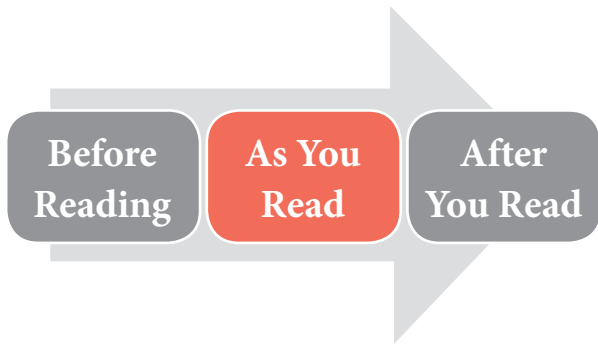
# CHAPTER 4: HOW WE ARRANGE THE FURNITURE IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 4, reflect on how you position the furniture in your room and why you do so.

PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about how you have your room organized. Who does it benefit?</li><li>2. Think about furniture arrangements that you have seen in other classrooms. Why would a teacher choose that arrangement? Who do you think it benefits?</li><li>3. Has how you organize your room changed over time? If so, why—what happened that prompted the change?</li><li>4. Does the way you currently arrange the furniture in your room encourage or inhibit thinking?</li></ol>	

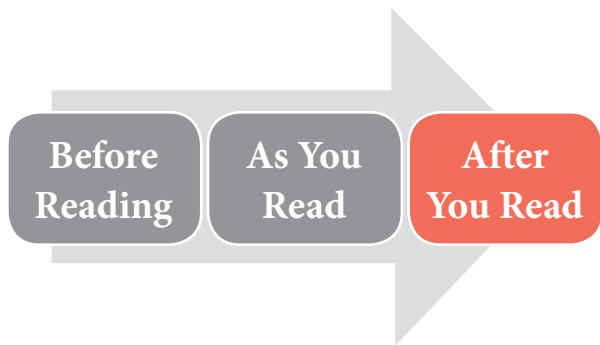


**As You Read:**

Use the following chart to record your notes about Chapter 4: How We Arrange the Furniture in a Thinking Classroom.

THOUGHTS ON CHAPTER 4: HOW WE ARRANGE THE FURNITURE				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



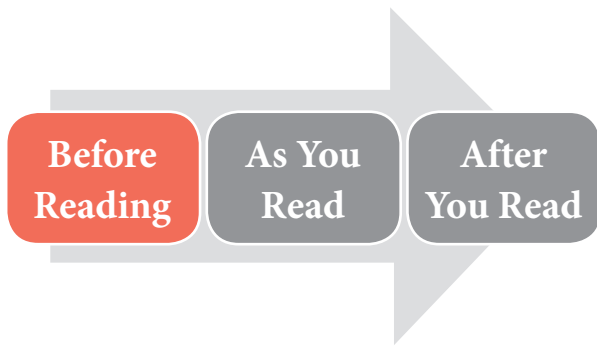


**After You Read:**

After you have read Chapter 4, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. Think of a time when the way a room was set up affected your learning behavior. In what way did the room setup tell you what to expect?</li>   <li>2. <i>The Problem</i> section ends with the idea that we need to find the right amount of disorder. What are some things that you can change in your classroom that would create more disorder—that you can live with?</li>   <li>3. In this chapter, you read about straightness and symmetry. What else in a classroom, and in teaching practice, might be governed by a desire to have things be straight and symmetrical? What, if anything, do you like about this? What message does this send to students?</li>   <li>4. If we think about the fact that everything we do sends a message to the students, what is the main message that students hear from your practice? Is this the message that you want to be sending them?</li> </ol>		

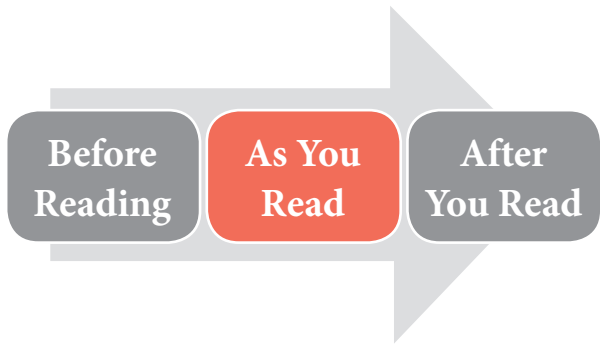
# ? CHAPTER 5: HOW WE ANSWER QUESTIONS IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 5, reflect on how you answer students' questions and why you do so.

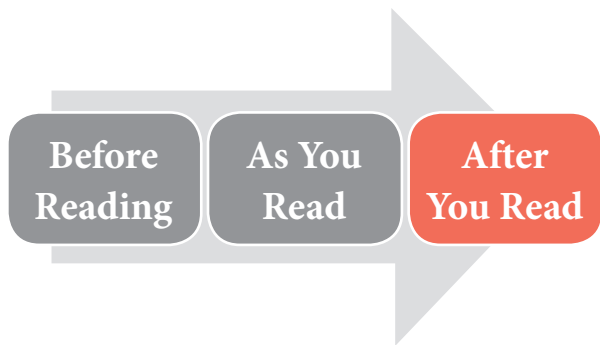
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about the types of questions students ask. Can they be categorized?</li><li>2. How do you respond to a student's question? Does how you answer it depend more on the type of question being asked or the student who asks it?</li><li>3. As teachers we want to be helpful. One way to do this is to answer students' questions. Can you think of any negative consequences that come from answering students' questions?</li><li>4. Has how you answer students' questions changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently answer questions encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 5: How We Answer Questions in a Thinking Classroom.

THOUGHTS ON CHAPTER 5: HOW WE ANSWER QUESTIONS				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



**After You Read:**

After you have read Chapter 5, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. The introduction talked about institutional norms being a potential source of student disengagement and lack of thinking in the classroom. This chapter talks about the way we, as teachers, answer questions as contributing to students' not thinking. In what other ways do our interactions with students reduce or remove their need to think?</p> <p>2. Many of the practices for building thinking classrooms discussed to this point are ways in which we can create environments that get students to think. The practice discussed in this chapter, in many ways, is the opposite of this. In this chapter, you learned about ways to avoid doing things that stop thinking. What other practices stop thinking?</p>		



## CHAPTER 6: WHEN, WHERE, AND HOW TASKS ARE GIVEN IN A THINKING CLASSROOM

Before  
Reading

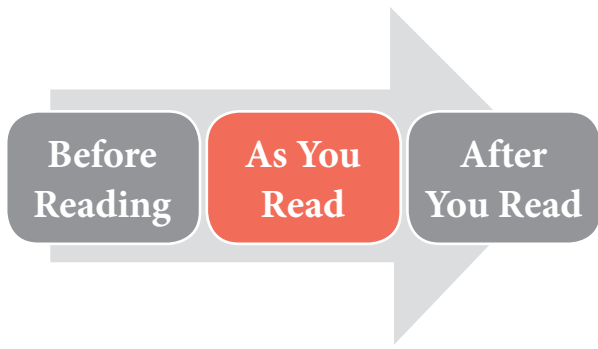
As You  
Read

After  
You Read

### Before Reading:

Before reading Chapter 6, reflect on when, where, and how you give students tasks and why you do so.

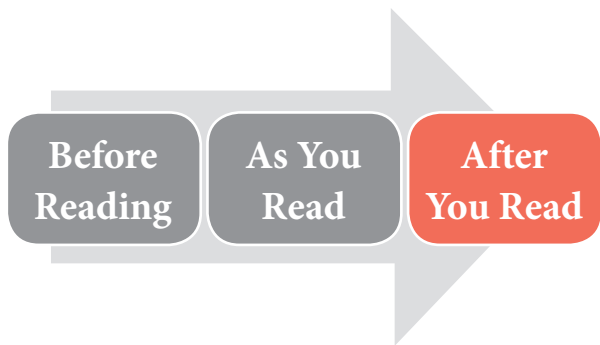
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. If you were given tasks at a conference that you want to use with your students, how would you transmit the tasks from you to them?</li><li>2. At what point in a lesson do you normally give students their first task to work on?</li><li>3. Where are you (and they) located in the room when you give the task?</li><li>4. Does when, where, and how you give a task vary at all and, if so, what does that depend on?</li><li>5. Has when, where, and how you give tasks changed over time? If so, why—what happened that prompted the change?</li><li>6. Does when, where, and how you currently give tasks encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 6: When, Where, and How Tasks are Given in a Thinking Classroom.

THOUGHTS ON CHAPTER 6: WHEN, WHERE, AND HOW TASKS ARE GIVEN				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



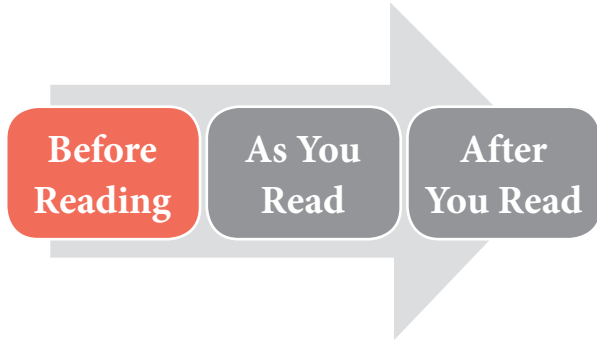
**After You Read:**

After you have read Chapter 6, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. Think about your teaching when students are sitting in their seats. How many are really paying attention to you? If a teacher standing in the back of your class and was able to see what your students were really doing, what do you think they would see?</li> <li>2. Think about how often you are verbal in your interactions with people outside of the classroom. What are the circumstances in which being verbal is not enough, and you need to demonstrate, point, or write something to help with the interaction? What is it you show, point to, or write in those circumstances? How does that compare to what you write for students in your current practice?</li> <li>3. This chapter included two examples of scripts that can be used to give a task verbally. Consider some tasks you have recently used or are about to use. What would verbal scripts for these look like?</li> </ol>		



# CHAPTER 7: WHAT HOMEWORK LOOKS LIKE IN A THINKING CLASSROOM

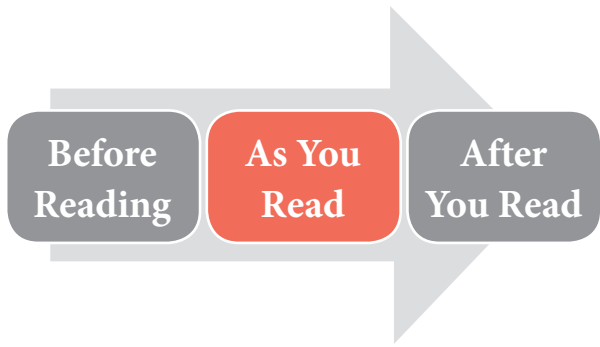


## Before Reading:

Before reading Chapter 7, reflect on what homework looks like in your classroom and why it does so.

PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. If you give homework in your classroom, why do you do it? What goal are you trying to achieve?</li><li>2. Is homework achieving these goals? If so, for whom?</li><li>3. Of those who do their homework, why do they do it? If you consider yourself successful at getting students to do their homework, what message are your methods sending to your students? That is, why do they do their homework, and who do they think it is for?</li><li>4. Has what homework looks like, and why and how you use it, changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently give homework encourage or inhibit thinking?</li></ol>	

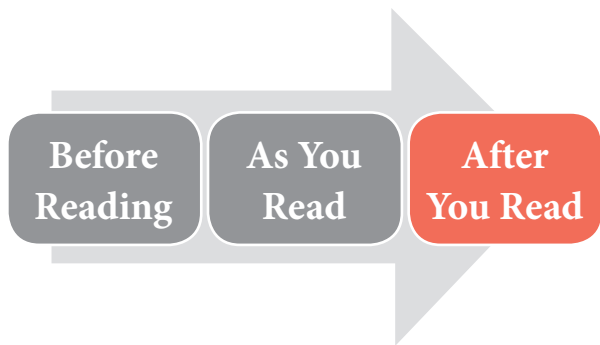




**As You Read:**

Use the following chart to record your notes about Chapter 7: What Homework Looks Like in a Thinking Classroom.

THOUGHTS ON CHAPTER 7: WHAT HOMEWORK LOOKS LIKE				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



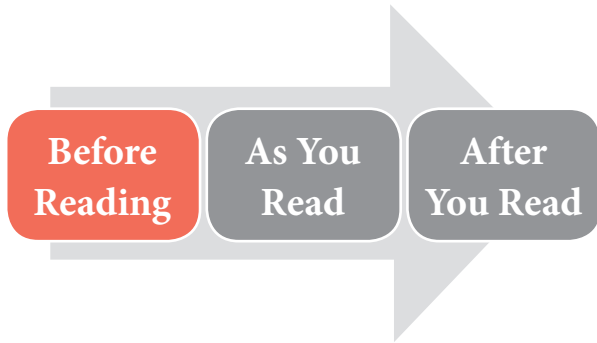
**After You Read:**

After you have read Chapter 7, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. In this chapter, it was mentioned that practice invokes mimicking. What are your thoughts about practice as an effective learning tool? Is this what you want your students to do?</p> <p>2. What do you think about the reality that some students may choose not to do, or not do all of, the check-your-understanding questions? How will you cope with this?</p> <p>3. Why do parents want (or not want) “homework” for their children?</p>		



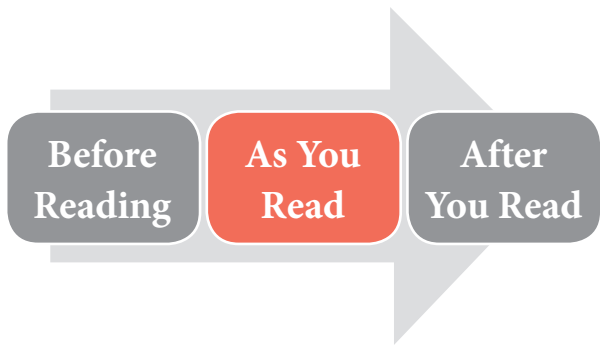
# CHAPTER 8: HOW WE FOSTER STUDENT AUTONOMY IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 8, reflect on the autonomy you give your students and why you do so.

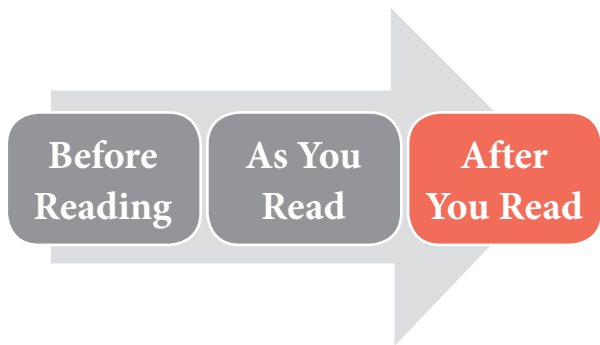
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about situations in which you give your students autonomy. Now compare them to situations in which you do not give autonomy. What is different about these situations, and why do some situations warrant autonomy while others do not?</li><li>2. Can you think of some benefits to giving students autonomy in your classroom?</li><li>3. Has the autonomy you give your students changed over time? If so, why—what happened that prompted the change?</li><li>4. Does the way you currently give your students autonomy encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 8: How We Foster Student Autonomy in a Thinking Classroom.

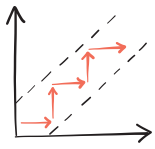
THOUGHTS ON CHAPTER 8: HOW WE FOSTER STUDENT AUTONOMY				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



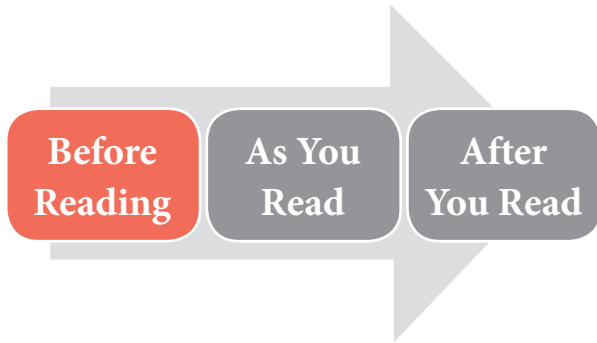
**After You Read:**

After you have read Chapter 8, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. This chapter focused on the nurturing of independence through the fostering of autonomy. Have you found any other ways to nurture independence?</p> <p>2. What are your feelings about the possibility for the proliferation of errors in a classroom where knowledge is being shared between groups?</p> <p>3. In what ways does the fostering of autonomy meet the goals of your curriculum?</p>		



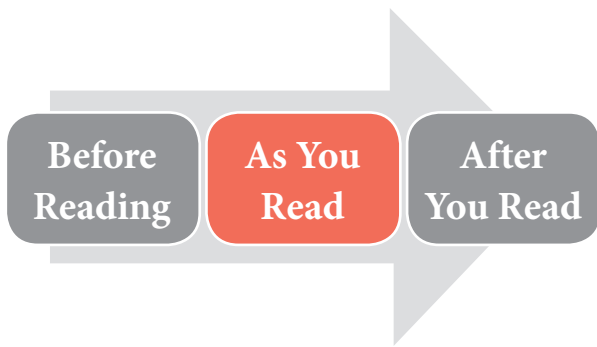
# CHAPTER 9: HOW WE USE HINTS AND EXTENSIONS IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 9, reflect on the ways in which you use hints and extensions and why you do so.

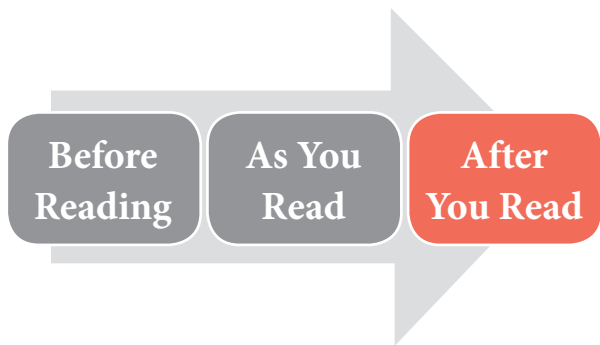
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Think about situations in which you give hints in your teaching. Who gets a hint, under what circumstances, and when?</li><li>2. Think about situations in which you give extensions in your teaching. Who gets an extension, under what circumstances, and when?</li><li>3. Has the way in which you use hints and extensions in your teaching changed over time? If so, why—what happened that prompted the change?</li><li>4. Does the way you currently use hints and extensions encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 9: How We Use Hints and Extensions in a Thinking Classroom.

THOUGHTS ON CHAPTER 9: HOW WE USE HINTS AND EXTENSIONS				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .

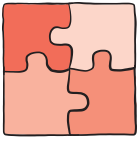


**After You Read:**

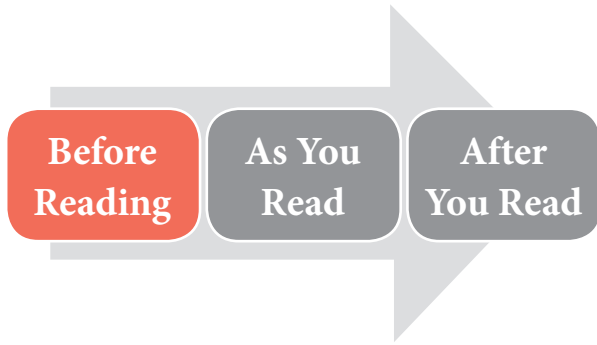
After you have read Chapter 9, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. This chapter included two examples of four sequences of curricular tasks that move students through large amounts of curricular content. Consider some content you have recently taught or are about to teach. What would a sequence of tasks for this content look like?</p> <p>2. Think about a topic that you believe is brand new to students. What is the minimum set of instructions that you need to give in order to prepare students to be able to think their way through the first task? What can students learn from this first task?</p> <p>3. How does the idea of creating and maintain flow fit with your current ideas around differentiation?</p>		





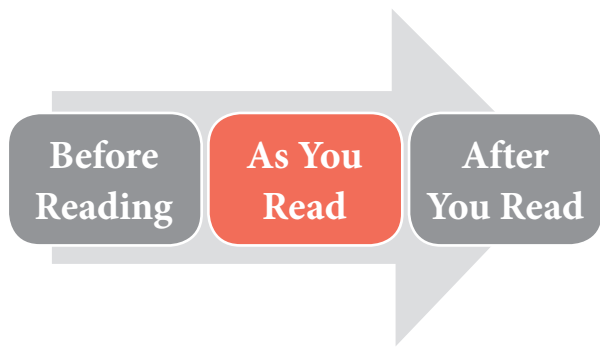
# CHAPTER 10: HOW WE CONSOLIDATE A LESSON IN A THINKING CLASSROOM



### Before Reading:

Before reading Chapter 10, reflect on the ways in which you consolidate a lesson and why you do so.

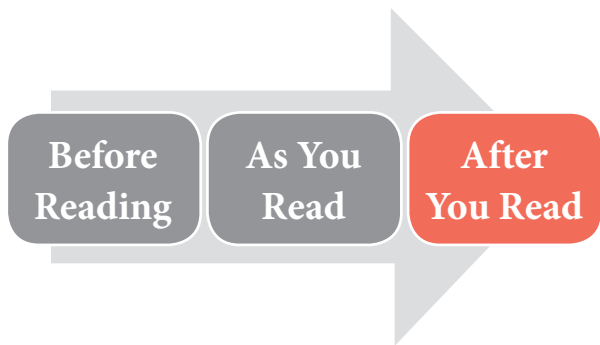
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. What is the primary goal for consolidating a task, activity, or lesson in your classroom?</li><li>2. Think about situations in which you have given students a task to do (maybe a now-you-try-one task). What does consolidation after this task look like?</li><li>3. Think about other situations in which you have consolidated at the end of a lesson. What does consolidation look like in this situation?</li><li>4. Has the way in which you consolidate a task, activity, or lesson changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently consolidate a task, activity, or lesson encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 10: How We Consolidate a Lesson in a Thinking Classroom.

THOUGHTS ON CHAPTER 10: HOW WE CONSOLIDATE A LESSON				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



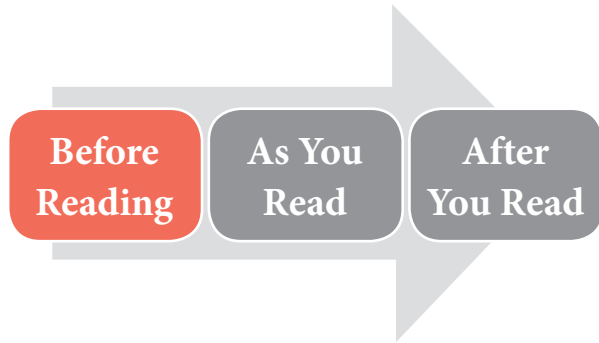
**After You Read:**

After you have read Chapter 10, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<p>1. In this chapter, you learned about consolidation as moving through the flow levels of a task or sequence of tasks. And while doing so, to start slow and go faster as you go. This means that the most nuanced and sophisticated solutions will get the least attention. How do you feel about this?</p> <p>2. In Chapter 6, you were presented with results that showed that we need to get the students thinking about a task within the first five minutes of class. This removes from our practice the ability to <i>teach</i> at the beginning of the lesson. This chapter on consolidation offers us a place where that teaching can now occur. How do you feel about consolidation—at the end of the lesson—as <i>teaching</i>?</p> <p>3. How is the <i>knowledge</i> that is conveyed during consolidation in a thinking classroom the same as or different from the knowledge that is conveyed during a typical lesson?</p>		



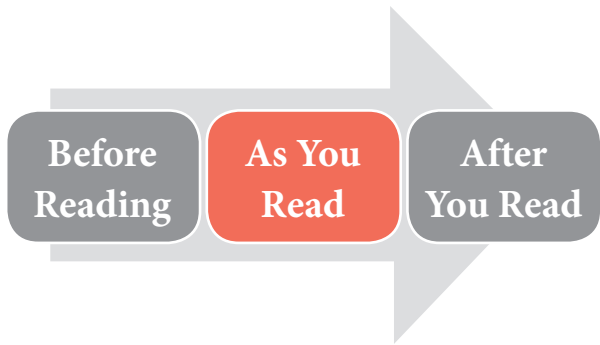
# CHAPTER 11: HOW STUDENTS TAKE NOTES IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 11, reflect on the ways in which you have students write notes and why you do so.

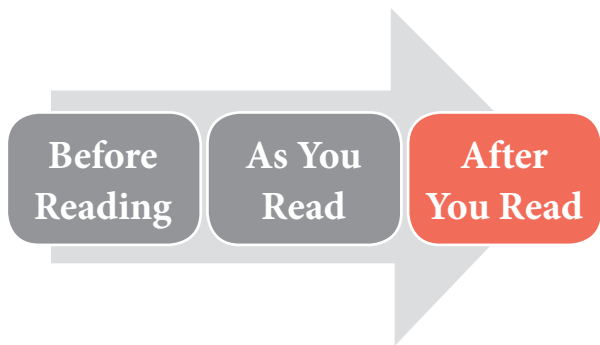
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. If you have students writing notes in your classroom, why do you do it? What goal are you trying to achieve?</li><li>2. Is the way you have students write notes achieving these goals? If so, for whom?</li><li>3. Of those who write notes, why do they do it? If you consider yourself successful at getting students to write notes, what message are your methods sending to your students? That is, why do they write notes, and who do they think the notes for?</li><li>4. Has the way in which you have students take notes changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently have your students take notes encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 11: How Students Take Notes in a Thinking Classroom.

THOUGHTS ON CHAPTER 11: HOW STUDENTS TAKE NOTES				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



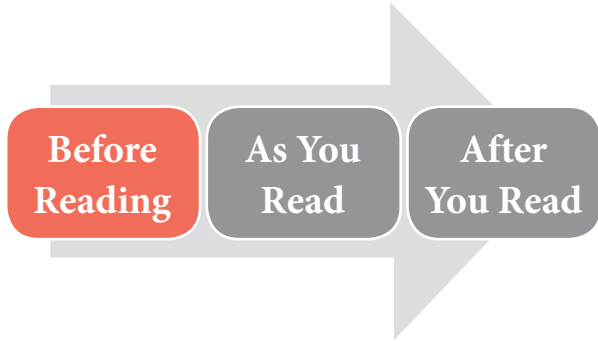
**After You Read:**

After you have read Chapter 11, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. Think of a time where you, yourself, took I-write-you-write or fill-in-the-blank notes. How engaged were you?</li>   <li>2. Consider the graphic organizers presented in this chapter. Which ones do you think would be good for your students? What situations favor one graphic organizer over another?</li>   <li>3. How do you feel about the fact that if you try to manage meaningful notes, students will start to do them for the wrong reason?</li> </ol>		



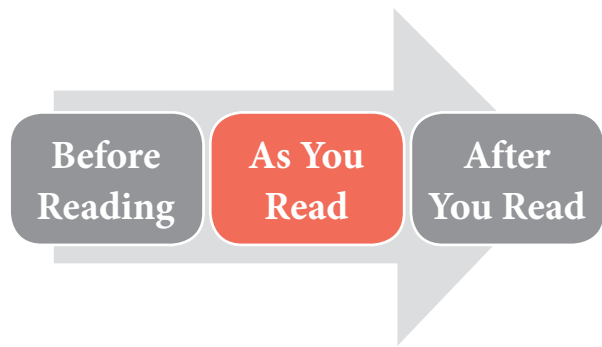
# CHAPTER 12: WHAT WE CHOOSE TO EVALUATE IN A THINKING CLASSROOM



### Before Reading:

Before reading Chapter 12, reflect on the things you choose to evaluate and why you do so.

PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"> <li>1. Consider math as consisting of a broad spectrum of knowledge, abilities, and competencies. What part of this spectrum do you evaluate? Why that part of the spectrum?</li> <li>2. If you teach more than one math course or one subject, how does the spectrum of what you evaluate differ between courses/subjects?</li> <li>3. Has what you choose to evaluate changed over time? If so, why—what happened that prompted the change?</li> <li>4. Does what you currently choose to evaluate encourage or inhibit thinking?</li> </ol>	

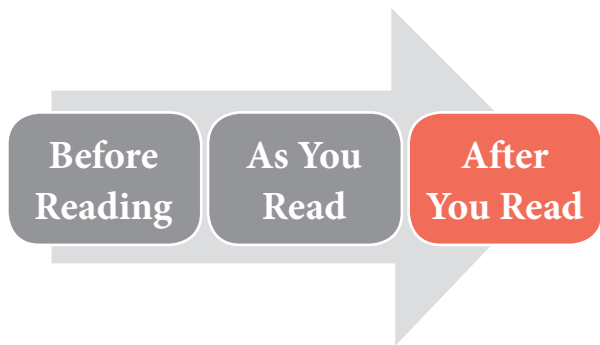


**As You Read:**

Use the following chart to record your notes about Chapter 12: What We Choose to Evaluate in a Thinking Classroom.

THOUGHTS ON CHAPTER 12: WHAT WE CHOOSE TO EVALUATE				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .





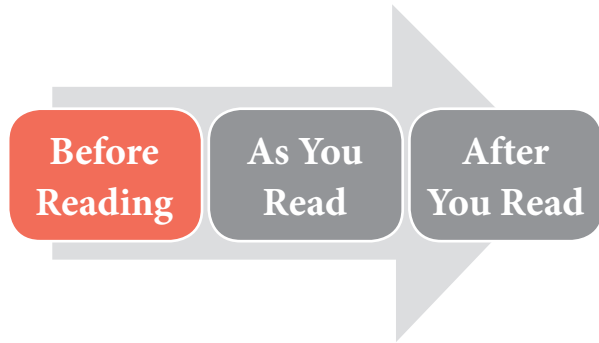
**After You Read:**

After you have read Chapter 12, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. Consider the quote, “Evaluation is a double edged sword. When we evaluate our students, they evaluate us—for what we choose to evaluate tells our students what we value.” If this is true, what does your evaluation practice communicate that you value?</li>   <li>2. Think about some competencies that you feel your students need to improve on. For which of these do you think you should coconstruct a rubric first?</li>   <li>3. This chapter mentioned that it is easiest to coconstruct a rubric right after an experience in which the class was deficit in the particular competency you want to focus on. What experiences can you design that will accentuate the deficiency you want to address? For example, if you want to focus on perseverance, you can begin by giving them a task that is tempting to give up on, but is solvable with time and effort.</li>   <li>4. The FAQ mentioned that it is possible to coconstruct rubrics for <i>producibles</i>. What kind of producibles do you use that you would like your students to get better at? What would the exemplars look like?</li> </ol>		



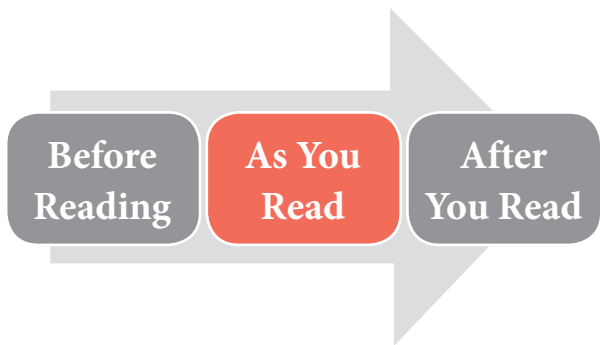
# CHAPTER 13: HOW WE USE FORMATIVE ASSESSMENT IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 13, reflect on the ways you use formative assessment and why you do so.

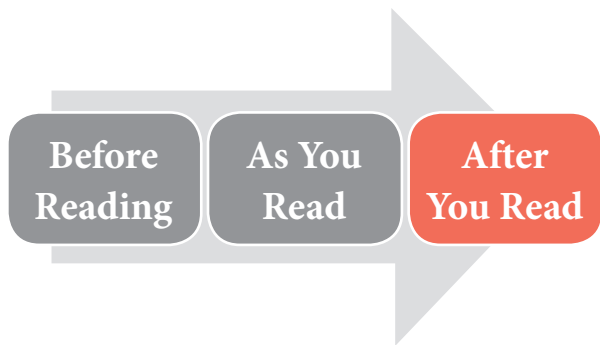
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. What does <i>formative assessment</i> mean to you?</li><li>2. <i>Formative</i> and <i>inform</i> both come from the same root word <i>conformare</i> (Latin). Who does your formative assessment inform—who does it serve? What does it inform them about—what does it serve?</li><li>3. Has the way you use formative assessment changed over time? If so, why—what happened that prompted the change?</li><li>4. Does the way you currently use formative assessment encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 13: How We Use Formative Assessment in a Thinking Classroom.

THOUGHTS ON CHAPTER 13: HOW WE USE FORMATIVE ASSESSMENT				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .

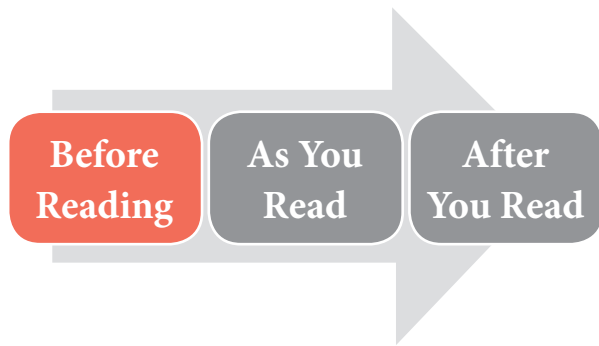


**After You Read:**

After you have read Chapter 13, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. If an assessment instrument does not communicate to students where they are and where they are going, then who does that instrument serve?</li>   <li>2. Can you think of ways in which you have previously received, or given, feedback that does not help a learner understand where they are and where they are going? If so, what information did the feedback communicate?</li>   <li>3. Can you think of ways in which your feedback has ever been encrypted in a way that obfuscates where students are and where they are going?</li>   <li>4. Can you think of other ways in which you can help students understand where they are and where they are going?</li> </ol>		

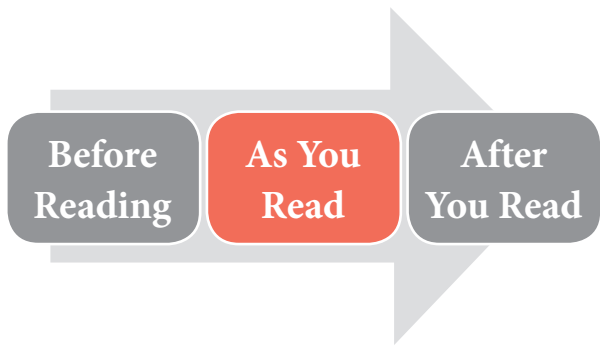
# B+ CHAPTER 14: HOW WE GRADE IN A THINKING CLASSROOM



## Before Reading:

Before reading Chapter 14, reflect on the ways you grade and why you do so.

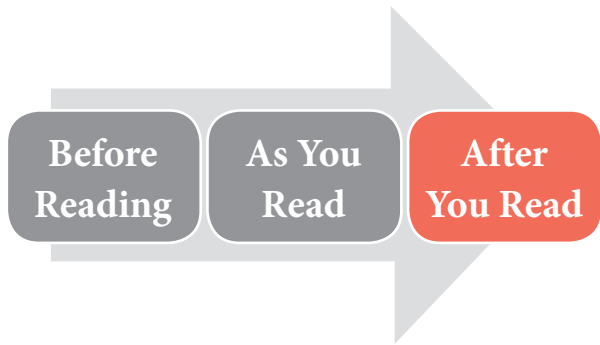
PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. What is a grade on a report card supposed to be a measure of?</li><li>2. Do you think your grading practice is fair? How do you know?</li><li>3. Can you think of instances where the grade your evaluation practice produced did not match with your judgement of what a specific student deserved? Did you change the grade? Whether you did or did not, what does that say about your judgement? What does that say about your evaluation practice?</li><li>4. Has the way you grade changed over time? If so, why—what happened that prompted the change?</li><li>5. Does the way you currently grade encourage or inhibit thinking?</li></ol>	



**As You Read:**

Use the following chart to record your notes about Chapter 14: How We Grade in a Thinking Classroom.

THOUGHTS ON CHAPTER 14: HOW WE GRADE				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .

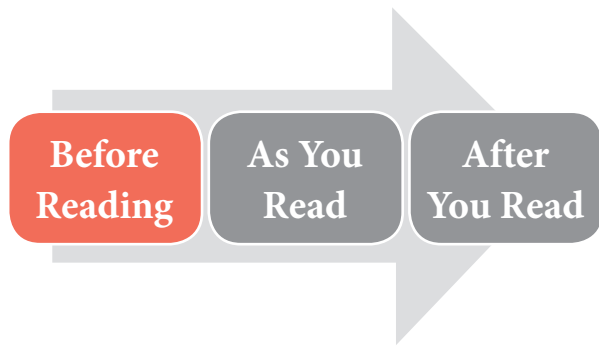


**After You Read:**

After you have read Chapter 14, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. The FAQ distinguished between grade inflation and grade deflation. Which do you think is the bigger problem?</li>   <li>2. In this chapter, you saw an example of a two-headed monster that exists in some jurisdictions. When it comes to grading, all jurisdictions have a two-headed monster of some kind. What are the two-headed monsters you have to live with?</li>   <li>3. Can you think of some ways in which you could introduce collaborative testing into your assessment routines?</li> </ol>		

# CHAPTER 15: PULLING THE 14 PRACTICES TOGETHER TO BUILD A THINKING CLASSROOM

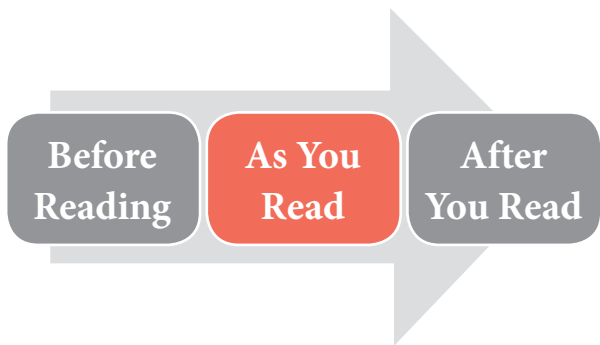


## Before Reading:

Before reading Chapter 15, reflect on what you have read in the book so far and how the 14 thinking practices may be brought together.

PREREADING QUESTIONS	MY THOUGHTS AND QUESTIONS
<ol style="list-style-type: none"><li>1. Which of the 14 thinking practices do you think will have the biggest impact on transforming your classroom into a thinking classroom?</li> <li>2. Which of the 14 thinking practices do you think will send the strongest message to students that thinking is an expected behavior in your classroom?</li> <li>3. What do you think a typical lesson in a thinking classroom looks like?</li></ol>	

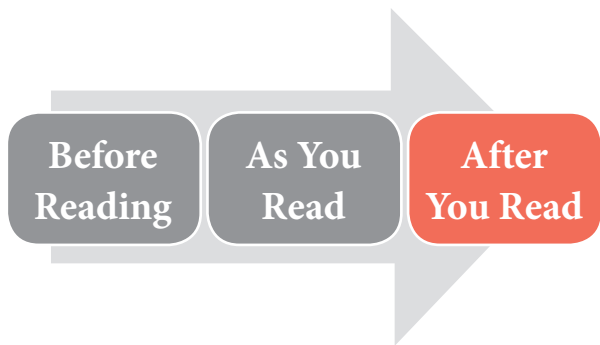




**As You Read:**

Use the following chart to record your notes about Chapter 15: Pulling the 14 Practices Together to Build a Thinking Classroom.

THOUGHTS ON CHAPTER 15: PULLING THE 14 PRACTICES TOGETHER TO BUILD				
Reading Notes	Page	I have already been thinking about (or doing) this.	I'd like to try . . .	I am worried about . . .



**After You Read:**

After you have read Chapter 15, use the following chart to help organize your discussion. In the first column list the things you wish to discuss with the group—some possible questions are already listed. In the second column record the things you learn from the group. And in the third column detail the things you are keen to try in your classroom in the future.

DISCUSSING	LEARNING	TRYING
<ol style="list-style-type: none"> <li>1. What are some different ways to split a thinking classroom lesson across two lessons?</li> <li>2. In this chapter, you read about the classroom as a system and how systems defend themselves against change. Can you think of a time where you tried to introduce something that the system defended itself against?</li> <li>3. If the best time to introduce something new to a system is in the first week of school, what do you want the start of your next school year to look like?</li> </ol>		