Intensive Interventions in Mathematics

# Module 4

# Activity Workbook

National Center on INTENSIVE INTERVENTION at American Institutes for Research

UCONN | UNIVERSITY OF CONNECTICUT

# Table of Contents

# Module 4 Checklist

The purpose of this Activity Workbook is to help organize content for this Module. You will do some Activities on your own to help you engage with and think about the content. You will not be required to submit your responses for those activities. There are other activities, however, that you will submit online and apply in your classroom. The activities that you must submit before completing this Module are listed in the "Online" column below.

| Section | Assignment | To Be Completed In Activity Workbook | To Be Completed Online | To Be Completed With Coach |
|---|---|---|---|---|
| Intro | Video | | ❑ Watch Module 4 Introduction Video Presentation | |
| Part 1 | Video | | ❑ Watch Module 4 Part 1 Video Presentation | |
| | Activity 1 | ❑ Identify Components of Modeling in an Intervention | | |
| | Activity2 | ❑ Using Examples and Non-Examples | | |
| | Activity 3 | ❑ Identify Additional Components of Modeling | | |
| | Activity 4 | ❑ Identify Supporting Practices in an Intervention | | |
| | Discussion | | ❑ Discussion Board: *Explicit Instruction*<br>❑ Share your video | |
| Part 2 | Video | | ❑ Watch Module 4 Part 2 Video Presentation | |
| | Activity 5 | ❑ Identify Concrete Materials | | |
| | Activity 6 | ❑ Identify Representations | | |
| | Activity 7 | ❑ Determine CRA Needs for a Student | | |
| | Discussion | | ❑ Discussion Board: *Manipulatives and Representations*<br>❑ Write Your Response<br>❑ Respond to 2 Others | |
| Part 3 | Video | | ❑ Watch Module 4 Part 3 Video Presentation | |
| | Activity 8 | ❑ "Instead of….say…!" Chart | | |
| | Activity 9 | ❑ Precise and Concise Language | | |
| | Discussion | | ❑ Discussion Board: *"Instead of…say…!"*<br>❑ Write Your Response<br>❑ Respond to 2 Others | |

| | | | | |
|---|---|---|---|---|
| **Next Steps** | Video | | ❑ Watch Module 4 Closing Video Presentation | |
| | Classroom Application | | | ❑ Using the Explicit Instruction Graphic Organizer |

# Intensive Interventions in Mathematics

- Module 4
- Part 1
- Activity #1

**Watch this video of intensive intervention. Fill in the table with the different components of modeling.**

| I Do: Modeling | |
|---|---|
| Clear Explanations<br>• Goal and Importance<br>• Model Steps<br>• Concise Language | |
| | |
| | |
| Planned Examples<br>• Examples<br>• Non-Examples | |
| | |
| | |

**Look at each of the intensive intervention topics. What would be four examples and two non-examples to use in modeling or practice?**

1. **Add and subtract within 20.**

| | | |
|---|---|---|
| Examples | 1. | |
| | 2. | |
| | 3. | |
| | 4. | |
| Non-Examples | 1. | |
| | 2. | |

2. **Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.**

| | | |
|---|---|---|
| Examples | 1. | |
| | 2. | |
| | 3. | |
| | 4. | |
| Non-Examples | 1. | |
| | 2. | |

3. **Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.**

| | | |
|---|---|---|
| Examples | 1. | |
| | 2. | |
| | 3. | |
| | 4. | |
| Non-Examples | 1. | |
| | 2. | |

# Intensive Interventions in Mathematics

- Module 4
- Part 1
- Activity #3

**Continue watching this video of intensive intervention. Fill in the table with the different components of modeling.**

<table>
<tr><th colspan="2">Practice</th></tr>
<tr><td></td><td rowspan="3">We Do:<br>Guided Practice<br>• Teacher and Student Practice Together</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="3">You Do:<br>Independent Practice<br>• Student practices with Teacher Support</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
</table>

# Intensive Interventions in Mathematics

- Module 4
- Part 1
- Activity #4

**Rewatch the video of intensive intervention.**

**Fill in the table with the different supporting practices.**

| **Supporting Practices** |
|---|
| • Asking the right questions<br>• Eliciting frequent responses<br>• Providing immediate specific feedback |
| |
| |
| |
| |
| |
| |

**Share a video of your explicit instruction and receive feedback on your modeling, practice, and supporting practices.**

(This space is for organizing your ideas.)

**Identify 10 concrete materials that you might want to use within intensive intervention.**

| Concrete Materials for Intensive Intervention | |
|---|---|
| **1** | |
| **2** | |
| **3** | |
| **4** | |
| **5** | |
| **6** | |
| **7** | |
| **8** | |
| **9** | |
| **10** | |

# Intensive Interventions in Mathematics

- Module 4
- Part 2
- Activity #6

**Identify 10 virtual representations that you might want to use within intensive intervention. You might want to check out the National Library for Virtual Manipulatives!**

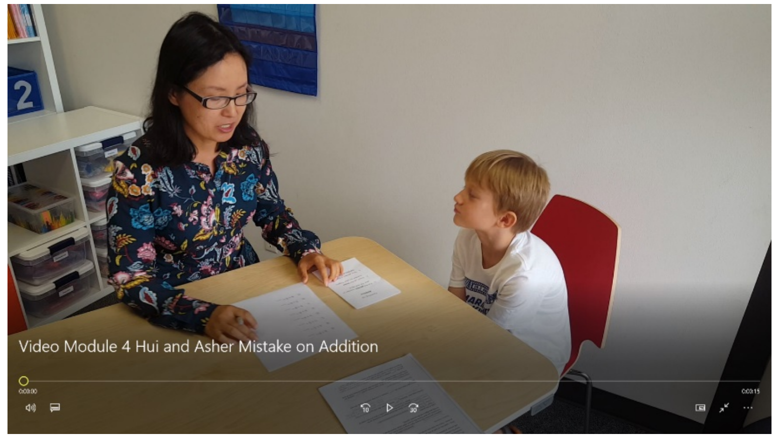
http://nlvm.usu.edu/en/nav/vlibrary.html

| Virtual Representations for Intensive Intervention | |
|---|---|
| **1** | |
| **2** | |
| **3** | |
| **4** | |
| **5** | |
| **6** | |
| **7** | |
| **8** | |
| **9** | |
| **10** | |

Intensive Interventions in Mathematics

- Module 4
- Part 2
- Activity #7

**Watch Asher solve 6 + 8.**




1. **Describe two concrete activities you could use to help Asher solve the problem correctly.**

2. **Describe two representational activities you could use to help Asher solve the problem correctly. Draw them.**

3. **Describe one abstract activity for helping Asher solve the problem correctly.**

**Describe three manipulatives or representations that you use on a regular basis. Describe the pros and cons of each.**

(This space is for organizing your ideas.)

# Intensive Interventions in Mathematics

- Module 4
- Part 3
- Activity #8

**Fill in the chart with your own "Instead of…say…" for each of the mathematics strands.**

| | Instead of… | Say… |
|---|---|---|
| **Numbers and Operations** | | |
| | | |
| **Algebra** | | |
| | | |
| **Geometry** | | |
| | | |
| **Measurement** | | |
| | | |
| **Data Analysis** | | |
| | | |

**Look at this intensive intervention lesson about word problems.**

- **Identify five instances where the mathematical language is *precis*e.**
- **Identify five instances where the mathematical language is *concise*.**

## 3: Buccaneer Problems

**Let's review. What's a Total problem?**

When parts are put together into a total.

**In a Total problem, two parts are put together to make a total. *All* total problems have the same Total equation. What's the total equation?**

P1 + P2 = T.

**When we solve word problems, what two things do we have in our answer?**

A number and a label.

**Very good. You must have a number *and* a label. What is a label?**

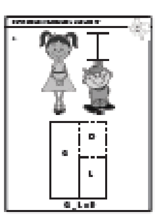
A word that tells us about our missing information..

**Excellent. A label is a word that tells us about our missing information. Now let's practice solving word problems!**

**Today, we'll learn a new type of problem. We call these Difference problems.**

**Difference means the difference between two amounts. In a Difference problem, you <u>compare</u> two amounts. When you compare, you put two amounts side by side to see which amount is greater and which amount is less. You compare two numbers and you find the difference between the amount that's greater and the amount that's less.**

**Let me show you what I mean.**



*Point to A.*

**Look at this picture. This is Amy. Her name is written here** (point) **under her picture. And this is John** (point)**. His name is written here under his picture. In this picture, Amy is taller than John. In a Difference problem, our job is to figure out how *much* taller**

**Amy is than John. The difference between Amy and John is this much.**

*Point to the difference in the heights.*

**When we compare Amy and John, this is the <u>difference</u> between their heights. Who is taller?**

Amy.

**That's right. Amy is taller. Who is shorter?**

John.

**Right. When we <u>compare</u> how tall they are, Amy is taller. John is shorter.**

**When you compare two things, like people, or two amounts of something, one amount is greater, and one amount is less. In Difference problems, our job is to figure out how *much* greater/taller or less/smaller one amount is compared to the other amount. Look up here. Let me show you another example.**

*Point to Difference Picture.*

**This box is the amount that's greater** (point and trace around entire "G" box). **It's like Amy** (write Amy's name in the greater box). **This box is the amount that's less** (point and trace around the entire "L" box). **It's like John** (write John's name in the less box). **This is the Difference between Amy and John** (Point and trace around the box with the dotted line.)

**In Difference problems, we compare two amounts to find the difference. One thing is greater. The other thing is less.**

**To find the difference, we <u>subtract</u>. What signs do we use in subtraction number sentences?**

A minus sign and an equal sign.

**That's right. To find the difference, we subtract. In our Difference equation, we use a minus sign and an equal sign.**

**Let's think back to Total problems. In Total problems, we put parts together into a total. What signs do we use in our Total equation, P1 plus P2 equals T?**

A plus sign and an equal sign.

**Right. For our Total equation, we always use a plus sign and an equal sign.**

**In Difference problems, we compare two amounts to find the difference. In our Difference equation, we use a minus sign and an equal sign, like this.**

*Point to the bottom of Difference Chart.*

**The Difference equation is G minus L equals D. The amount that's greater minus the amount that's less equals the Difference. Here is the minus sign** (point), **and here is the equal sign** (point).

**Let me show you how the Difference equation is like the picture. G is the amount that's greater or Amy. Let's say Amy is 5 feet tall. I write 5 underneath G and put 5 in the box with G.**

*Write 5 underneath G and put 5 in the box with G.*

**L is the amount that's less or John. Let's say John is 3 feet tall. I write 3 underneath L and put 3 in the box with L.**

*Write 3 underneath L and put 3 in the box with L.*

**We're finding the Difference between Amy and John. That's this much.**

*Show with your hands the amount between Amy and John.*

**This is what's missing. So I write X underneath D and put X in the box with D.**

*Write X underneath D and put X in the box with D.*

**Now I put the minus and equal sign into the number sentence. Now I can find X! When X is at the end, I solve it. I need to subtract. What's 5 minus 3?**

2.

**Right. 5 minus 3 is the same as 2. X equals 2. The difference between Amy and John is 2 feet. Amy is 2 feet taller than John. John is 2 feet shorter than Amy.**

- Module 4
- Part 3
- Activity #9 (cont)

**Complete the table.**

- **Identify five instances where the mathematical language is *precis*e.**
- **Identify five instances where the mathematical language is *concise*.**

| | **Examples of Language from Intensive Intervention** |
|---|---|
| **Precise** | 1. |
| | 2. |
| | 3. |
| | 4. |
| | 5. |
| **Concise** | 1. |
| | 2. |
| | 3. |
| | 4. |
| | 5. |

**Share three examples of "instead of…, say…!" with your classmates.**

**Write an original post on the Discussion Board and respond to two peers.**
(This space is for organizing your ideas.)

Classroom Application

LET'S DO IT

Module 4

**Fill in the explicit instruction graphic organizer for an upcoming lesson.**

| | Modeling | Practice | |
|---|---|---|---|
| | | | |
| | | | We Do |
| | | | |
| I Do | | | |
| | | | You Do |
| | | | |

| Supporting Practices |
|---|
| |
| |
| |
| |

# References

Miller, S. P., & Hudson, P. J. (2007). Using evidence-based practices to build mathematics competence related to conceptual, procedural, and declarative knowledge. *Learning Disabilities Research and Practice, 22*, 47–57.