Ideas in Mathematics:
Error Analysis

Key Concept

Error analysis helps us to find what mistakes students make, determine why and see what we can do to help them

Why?

Informs Instruction

- Determines what are the next steps needed to support each student.

How?

Analyze Work Samples

- Look at work students are doing in your class.

Diagnostic Observations or Interviews

- Interview students to better gauge their thinking.

Slips

- Errors not representative of misconceptions
- Often fixed with better organization and self-monitoring

Bugs

- Errors representative of misconceptions
- Shown in patterns within work

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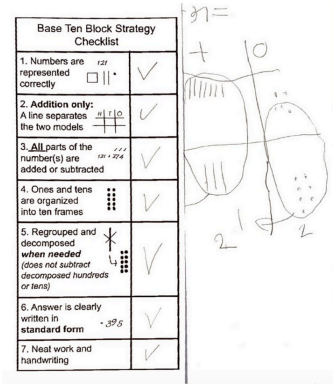
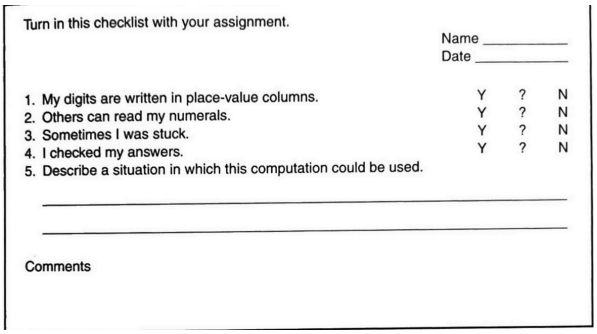
Slips Instructional Strategies

- Teach students organization and to check for mistakes
- Introduce self-monitoring checklists



Base Ten Block Strategy Checklist	
1. Numbers are represented correctly	✓
2. **Addition only:** A line separates the two models	✓
3. **All** parts of the number(s) are added or subtracted	✓
4. Ones and tens are organized into ten frames	✓
5. Regrouped and decomposed ***when needed*** *(does not subtract decomposed hundreds or tens)*	✓
6. Answer is clearly written in **standard form**	✓
7. Neat work and handwriting	✓



Turn in this checklist with your assignment.

Name _____
Date _____

1. My digits are written in place-value columns.	Y	?	N
2. Others can read my numerals.	Y	?	N
3. Sometimes I was stuck.	Y	?	N
4. I checked my answers.	Y	?	N

5. Describe a situation in which this computation could be used.

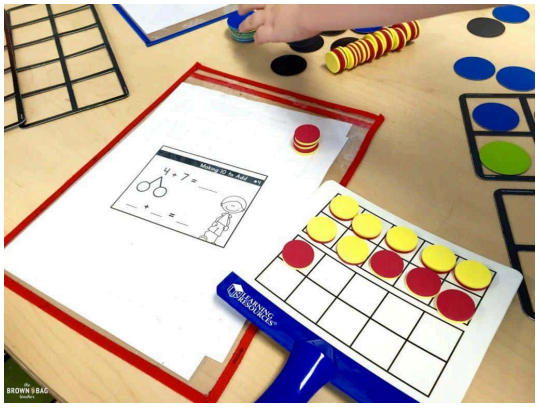
_____

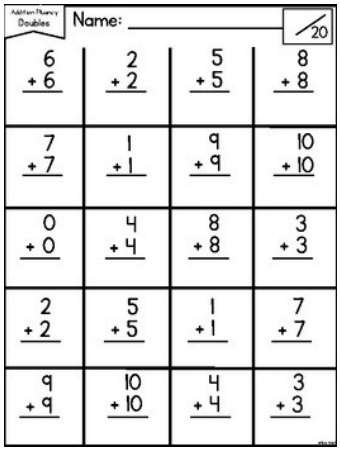
_____

Comments

Bugs Instructional Strategies

- Step-by-Step Modeling and guided practice
- Use of manipulatives and visuals
- Daily fluency practice





Addition Fluency: Doubles

Name: _____ /20

6 + 6	2 + 2	5 + 5	8 + 8
7 + 7	1 + 1	9 + 9	10 + 10
0 + 0	4 + 4	8 + 8	3 + 3
2 + 2	5 + 5	1 + 1	7 + 7
9 + 9	10 + 10	4 + 4	3 + 3

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Diagnostic Observations and Interviews

Why?

- Help provide clearer picture of student thinking
- Serve as an opportunity to gather information

How?

- Try to accept student responses without judgement
- Keep your responses neutral
- Probe questions which are both correct and incorrect.

Sample Script

Read the problem, please.
What is the question asking you to do?
How are you going to find the answer?
Do the work and tell me about your thinking as you work.
Write down your answer.
How did you get your answer? I may have missed something.
If you had to teach someone else to solve this problem, what would you tell them?
This time, I'll hold the pencil. You act as the teacher and tell me what to do.

Ashlock, R. B. (2010). Error patterns in computation: Using error patterns to help each student learn (10th ed.). Pearson.