Investigate equal/unequal quantities and operations with a real balance

NAME	DATE

1 **Activity · Work with your teacher**

Use the balance. Make the sides equal. Show what happens when you add or take away a cube.

Investigate equal/unequal quantities and operations with a real balance

1. Investigates equal and unequal quantities with identical cubes on a real level pan balance, then models addition and subtraction by adding and removing cubes. Explains the observed balance in each case. A written missing number or symbol alone is insufficient.

Curriculum applications this task can record: Alberta Grade 1: Investigate equal quantities with a real balance; Investigate unequal quantities with a real balance | Alberta Grade 1: Model and explain addition with a real balance; Model and explain subtraction with a real balance. Record the actual independent response and any separate actions; this does not establish the whole broader skill.

Broader skill evidence: Direct evidence only for the explicitly bound Grade 1 actions recorded separately; no automatic full-FI completion.

Teacher procedure · Question 1

1. Prepare a level two-pan balance and at least 20 identical unit cubes. Check it is level when empty. Use equal-mass cubes; do not compare unlike weights.
2. The four trials may be administered in separate sessions. Date and retain each actual trial independently. Leave unadministered trials Not observed and the combined task Not answered; do not rerun completed trials merely to fill a session. Separate sessions do not become four full-skill mastery demonstrations.
3. Ask the child to put 5 cubes on each side, predict and observe what happens, and explain why the balance is level. Record balance-equal.
4. Ask the child to add 1 cube on one side, predict and observe, and explain that the sides now have unequal quantities. Record balance-unequal.
5. Start again with 3 cubes on one side and 5 on the other. Ask how many to add to make the sides equal. Let the child test adding 2. Record balance-add and the actual addition model.
6. Start again with 7 cubes on one side and 4 on the other. Ask how many to remove to make them equal. Let the child test removing 3. Record balance-subtract and the actual subtraction model.
7. Do not supply the child’s explanation. This is a separately requested activity; its pictures or equation never replace the real balance.

Record: Record each action separately, the actual materials/results and the help provided.

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balance equal

Date observed: _____

☐ Independent ☐ Not yet / help needed ☐ Not observed

What the child said or did; prompts or self-correction:

balance unequal

Date observed: _____

☐ Independent ☐ Not yet / help needed ☐ Not observed

What the child said or did; prompts or self-correction:

balance add

Date observed: _____

☐ Independent ☐ Not yet / help needed ☐ Not observed

What the child said or did; prompts or self-correction:

balance subtract

Date observed: _____

☐ Independent ☐ Not yet / help needed ☐ Not observed

What the child said or did; prompts or self-correction:

Investigate equal/unequal quantities and operations with a real balance

Investigates equal and unequal quantities with identical cubes on a real level pan balance, then models addition and subtraction by adding and removing cubes. Explains the observed balance in each case. A written missing number or symbol alone is insufficient.