



D-I-E Protocol Mathematics Example

DESCRIBE: What do I see?

- **I noticed** that the student selected 16 gallons for question 1.
- **I can count** that the student wrote $128 \div 8 = 16$ as part of their work.
- **A pattern I notice is** that the student is using multiplication and division to convert units.
- **I notice that** the student wrote 1 gallon = 8 cups, which is not consistent with the reference chart.
- **There is evidence that** the student attempted to use the conversion chart provided.
- **I notice that** for question 2, the student selected 4000 g.
- **I can count** that the student multiplied 4×1000 in question 2.
- **A pattern I notice is** that the student is correctly using metric conversions with powers of 10.
- **I notice that** for question 3, the student selected 46145 yards.
- **There is evidence that** the student multiplied $26 \times 1,760$ and then added 385 yards.

INTERPRET: What do I think about what I see?

- **I think** the student may be confusing cups and quarts, which led to an incorrect conversion in question 1.
- **It seems important that** the student attempted to use a formula but may have used the wrong conversion factor.
- **The evidence shows that** the student understands how to divide to convert units, even if the unit relationship is incorrect.
- **What this means to me is that** the student has a procedural strategy but lacks accuracy with customary units.
- **One explanation might be that** the student misread the chart or relied on memory instead of the reference tool.
- **I think** the student demonstrates a strong understanding of metric conversions in question 2.
- **The evidence shows that** the student correctly applied $1 \text{ kg} = 1000 \text{ g}$.
- **What this means to me is that** the student is more confident with metric than customary conversions.
- **One explanation might be that** repeated exposure to base-10 systems makes metric conversions easier for the student.
- **I think the student** understands multi-step problems based on their work in question 3.

EVALUATE: What will I do next?

- **I think** reviewing customary unit relationships might be an appropriate solution because the student used an incorrect conversion.
- **It's important to keep** the student's strength in metric conversions as a foundation for new learning.
- **It might look different** if the student consistently used the reference chart accurately during problem solving.
- **One thing to try** is having the student label units at each step to avoid confusion.
- **I think** providing practice that compares customary vs. metric systems might be an appropriate solution because it highlights differences.
- **It's important to keep** reinforcing checking work against reference tools.
- **One thing to try is** modeling how to verify answers using estimation.
- **I think** small group instruction on unit relationships (cups, pints, quarts, gallons) might be an appropriate solution.
- **It might look different** if the student explains their reasoning verbally or in writing before solving.
- **One thing to try** is using visual conversion charts or diagrams to strengthen conceptual understanding.