Make a Map   *E010 scoring rubric*

Math Domain

☐ Number/Quantity	☐ Shape/Space	☑ Function/Pattern
☐ Chance/Data	☐ Arrangement	

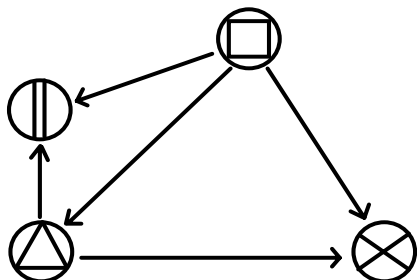**Math Actions** (possible weights: 0 through 4)

2 Modeling/Formulating	1 Manipulating/Transforming
3 Inferring/Drawing Conclusions	2 Communicating

Math Big Ideas

☐ Scale	☐ Reference Frame	☑ Representation
☐ Continuity	☐ Boundedness	☐ Invariance/Symmetry
☑ Equivalence	☐ General/Particular	☐ Contradiction
☐ Use of Limits	☐ Approximation	☐ Other

The intent of this task is to have students demonstrate their understanding of diagrams of binary relationships by reading, interpreting, and constructing such diagrams.

1.

2.   Kevin   - black triangle

Andrew   - gray triangle

Michael   - white triangle

3.   solid line with arrow   we live in the same house

dashed line with arrow   we go to the same school

dotted line with arrow   we go to the same camp

4. The only circle that can be definitely identified is the black, representing the sewing machine; for the other circles there are several possibilities.

Here is one:

The black circle represents the sewing machine.

The first shaded circle represents the radio.

The second shaded circle represents the vacuum cleaner.

The white circle represents either the iron or the hair dryer.

And here is another:

The black circle represents the sewing machine.

The first shaded circle represents the radio or the vacuum cleaner.
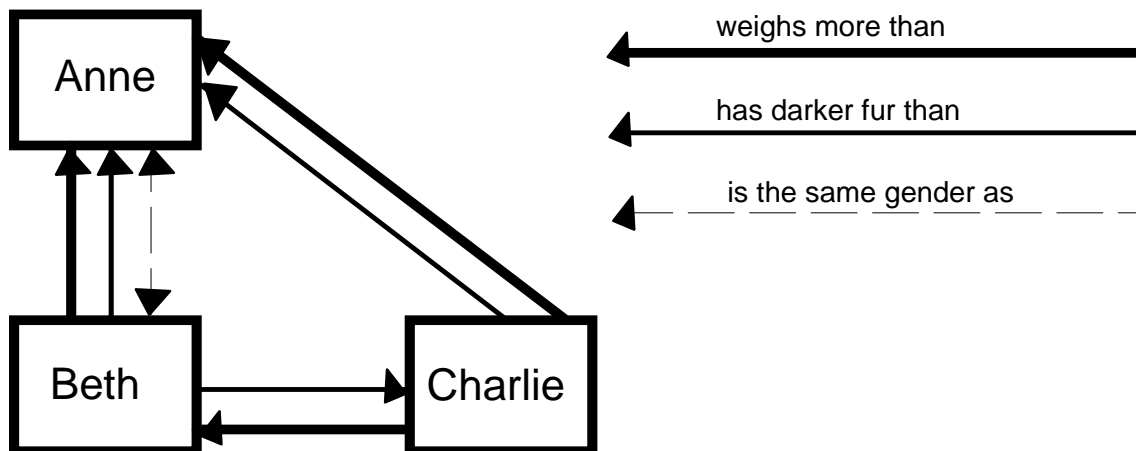
The second shaded circle represents the iron.

The white circle represents the hair dryer.

Dealing with uncertainty is a hard task for this age group, and they may have difficulty in verbalizing the possible duality of representation.

5. It is imperative that the symbolism, the narrative of the relationships, and the direction of the arrows be consistent. It is hoped that students will choose interesting, fanciful stories to map. Here is one possibility:

There are 3 surviving kittens in a litter. There is a female named Anne, who weighs the least and is the palest. There is a male named Charlie who weighs the most, and there is a female named Beth who has the darkest fur.

	partial level	**full level**
Modeling/ Formulating (weight: 2)	Correctly identify some of the symbols and arrows in **1–4**.	Correctly identify all of the symbols and arrows in **1–4**.
Transforming/ Manipulating (weight: 1)	Give a partial ordering of the objects in **4**.	Make a fully correct ordering of the objects in **4**.
Inferring/ Drawing Conclusions (weight: 3)	Correctly identify elements and arrows in **1-3**.	Additionally, provide a reasonable interpretation of **4**.
Communicating (weight: 2)	Give a minimal narrative in **5** that mimics one of the earlier questions.	Devise and describe clearly a fresh set of elements and relationships in **5**.