Breaking Down a Mathematics Standard

**What is the domain/conceptual category/big idea?**

**Algebra - Seeing Structure in Expressions**

**Standards for Mathematical Practice**

- **MP.1.** Make sense of problems and persevere in solving them.
- **MP.2.** Reason abstractly and quantitatively.
- **MP.3.** Construct viable arguments and critique the reasoning of others.
- **MP.4.** Model with mathematics.
- **MP.5.** Use appropriate tools strategically.
- **MP.6.** Attend to precision.
- **MP.7.** Look for and make use of structure.
- **MP.8.** Look for and express regularity in repeated reasoning.

**Cluster: What is the broader understanding that the standard plays a role in building?**

Interpret the structure of expressions.

**Standards**

- Identify the target of the standard:
  - Conceptual understanding
  - Procedural skill/fluency
  - Application

Consider how the target of the standard will have an impact on instruction and assessment. (For more information, refer to p. 7, 10 and 15 of KAS for Mathematics.)

**Clarifications**

- What are the specific representations/strategies that will need to be considered when planning instruction?
  - 3 common forms of a quadratic equation
  - Can technology be used to support learning here?

Emphasis on when one form might be more useful than another (very purposeful!)

- What are the possible misconceptions that will need to be addressed during instruction?
  - Misunderstanding of vocabulary (factors/solutions, etc.)
  - Might over-rely on procedures & convert between forms when not necessary (take time consuming)
  - Typical misunderstanding: \((x + y)^2 = x^2 + 2xy + y^2\) not \(x^2 + y^2\)

- Coherence: Previous Grade → Current Standard → Upcoming Grade

- How does this standard build off of prior learning?
  - Middle grades: Expressions & Equations domains
  - How does this standard support future learning?
    - Post Foundational
    - KHS.A.3,4 relationship between factors and zeros (graph)
  - How does this standard connect to other standards (or even other clusters or domains)?
    - KHS Algebra is closely related to KHS Functions

**Attending to the Standards for Mathematical Practice**

- How are students engaging in the mathematical practices as they learn this content? (For more information, refer to p. 12-15 of KAS for Mathematics.)
  - MP 8: Students manipulate expressions into equivalent forms, based on patterns they've noticed across problems