

# Breaking Down a Mathematics Standard

KAS: KY.8.SP.3

What is the domain/conceptual category/big idea?

Statistics & Probability

## 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?

Investigating patterns of association in bivariate data

Standards	Clarifications
<ul style="list-style-type: none"> <li>Identify the target of the standard:                             <ul style="list-style-type: none"> <li>conceptual understanding</li> <li>procedural skill/fluency</li> <li>application</li> </ul> </li> </ul> <p>Both needed to meet the full intent of the standard.</p> <p>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.)</p> <p><b>Conceptual Understanding:</b> students make sense of why a mathematical idea is important &amp; the kinds of contexts in which it is useful. Students connect prior knowledge ideas to new ideas &amp; concepts.</p> <p><b>Application:</b> Students solve problems in a relevant, meaningful way. Determine whether a solution makes sense using reasoning &amp; critical thinking skills.</p> <ul style="list-style-type: none"> <li>What key mathematics should students know and be able to do?                             <ul style="list-style-type: none"> <li>-interpret a slope &amp; y-intercept</li> <li>-use the equation of a linear model to solve problems</li> </ul> </li> </ul> <p>All in context!</p>	<ul style="list-style-type: none"> <li>What are the specific representations/strategies that will need to be considered when planning instruction?                             <ul style="list-style-type: none"> <li>-Grade 8 deals mainly with linear/nonlinear distinctions with statistical models.</li> <li>-Students need to see examples of various contexts, including those where interpreting the slope/intercept are not useful.</li> </ul> </li> <li>What are the possible misconceptions that will need to be addressed during instruction?                             <ul style="list-style-type: none"> <li>After a line is fit through the data, the slope &amp; y intercept are approximated → students have seen a lot of perfectly linear patterns and will need to understand that these are models for predictions &amp; should be interpreted as such.</li> </ul> </li> </ul> <p>Coherence: Previous Grade → Current Standard → Upcoming Grade</p> <ul style="list-style-type: none"> <li>How does this standard build off of prior learning?                             <ul style="list-style-type: none"> <li>Grade 7 → From Overview: understand unit rate informally as a measure of the steepness of the related line, called the slope.</li> </ul> </li> <li>How does this standard support future learning?                             <ul style="list-style-type: none"> <li>KY.HS.SP.6 &amp; KY.HS.SP.7 → expected to interpret linear models BUT are also expected to calculate &amp; analyze</li> </ul> </li> <li>How does this standard connect to other standards (or even other clusters or domains)?                             <ul style="list-style-type: none"> <li>F, NS, EE all working together around linear relationships</li> <li>quadratic, &amp; exponential</li> </ul> </li> </ul>

## 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.2 → Students contextualize & decontextualize, attend to the meaning of quantities not just how to compute them
- MP.4 → Students routinely interpret their mathematical results in the context of the situation & reflect on whether the results make sense based on slopes, initial values, or the fit to the data.