

It's About Authenticity!

Objectives:

Teachers Will Be Able to:

- Discuss three different effective strategies for investing students in the ACT IA process within a classroom.
- Identify ways to deemphasize the test-prep focus in a math classroom.
- Practice strategies for providing students with a truly college-preparatory math classroom that focuses on the primary course standards (CCSS, AP, or similar).

Keys to Investment

Notes:

Three Investment Suggestions

1. From early in the year, help students understand the purpose of the ACT IAs.
2. Design your class so that the CCRS are just part of what you do, not an extra thing that happens once a week.
3. Find the least intrusive way to keep you students invested.

Least Intrusive	Mildly Intrusive	Most Intrusive



Practice: Identifying Investment Strategies

Writing Space:

Test-Prep Pitfalls

Pitfall 1: Direct modeling off of questions students will see on an IA.


ACT Question:


The inequality $-2(-3 + x) < -18 + x$ is equivalent to which of the following inequalities?

- F. $x < -12$
- G. $x < -8$
- H. $x > -24$
- J. $x > 8$
- K. $x > 24$

Similar Thinking Question Example:

Write three different inequalities that are all equivalent to $x > 4$. Each inequality you write must require the distributive property to solve algebraically.





Pitfall 2: Overemphasizing correct answers on multiple choice problems.

ACT Question:

The inequality $-2(-3 + x) < -18 + x$ is equivalent to which of the following inequalities?

- F. $x < -12$
- G. $x < -8$
- H. $x > -24$
- J. $x > 8$
- K. $x > 24$

Break Down Incorrect Answers Examples:

In the above problem, what mistake would a student make that would result in choosing answer choice F?

Pitfall 3: Practice tests or quizzes that look like the test students will take.

Similar to Pitfall #1 but not just for IAs and ACTs. You can use the above solutions or the ones we will practice in the next section.

Practice: Identifying Your Current Pitfalls

My current pitfall is:

My personal goal is:

Best practices and ideas for avoiding pitfalls:





Key Takeaways


Notes:

Making a Teaching Moment Truly College-Prep

Planning for Critical Thinking: Designing a rigorous multiple choice problem

x	0	1	2	3
$f''(x)$	5	0	-7	4

14. The polynomial function f has selected values of its second derivative f'' given in the table above. Which of the following statements must be true?

- (A) f is increasing on the interval $(0, 2)$.
 - (B) f is decreasing on the interval $(0, 2)$.
 - (C) f has a local maximum at $x=1$.
 - (D) The graph of f has a point of inflection at $x=1$.
 - (E) The graph of f changes concavity in the interval $(0, 2)$.
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Planning for Critical Thinking: Writing a Problem Backwards

At the market, blueberries cost \$5 per box and strawberries cost \$3 per box. Quentin buys the same number of boxes of blueberries as he does boxes of strawberries and spends a total of \$56. How many total boxes of blueberries and strawberries does Quentin buy?

- F. 8
- G. 10
- H. 14
- J. 20
- K. 24

Backwards version:

Luis bought blueberries and strawberries for a total of 14 boxes altogether. He bought the same number of boxes of blueberries and strawberries. The blueberries cost \$5 per box. Luis spent \$56 total. How much is one box of strawberries?

Rewriting for CCRS Alignment: Using an ACT Question Stem

Study up on the ACT question stems and vocabulary and repeat that with other questions.


KIPP Share has a Question Stems Chart, but it is almost TOO specific. I prefer more general stems.


Example 1: “Which of the following mathematical expressions is equivalent to...”

Can be followed by: $3x(x+1)-2x$ OR “A number, x , divided by 2 times the quantity $7x$,” etc.

Example 2: As part of a lesson on motion, students observed a ___ rolling at a constant rate along a straight line. As shown in the chart below...

Can be followed by: any chart that students must work with.





Rewriting for CCRS Alignment: Rewriting a Multiple Choice Question for Authentic Discussion

A rectangle has an area of 32 square feet and a perimeter of 24 feet. What is the shortest of the side lengths, in feet, of the rectangle?

- F.** 1
- G.** 2
- H.** 3
- J.** 4
- K.** 8

For authentic discussion, give them the question with no multiple choice options. Then ask a mathematical practice question like the following prompt.

How can we answer this question using diagrams? How can we answer this question using a system of equations? What are the strengths and weaknesses of each method?

Practice: Planning a College-Prep Teaching Moment

Notes:

