

# THE DEPTH AND COMPLEXITY EXPERIENCE

with Lisa Van Gemert | [giftedguru.com](http://giftedguru.com)

This handout is specifically designed to guide and support participation. The effectiveness of your time spent today will depend in large part upon your willingness to engage fully in the exercises, including those included here.

- Which statistic stood out the most to you? \_\_\_\_\_
- What does the Depth & Complexity model offer?
  - a \_\_\_\_\_ for academic exploration that uses \_\_\_\_\_ and a set of universally agreed-upon \_\_\_\_\_ to guide scholarly endeavor \_\_\_\_\_ content areas, grade levels, and standards.

## LANGUAGE OF THE DISCIPLINE



“But always he lacked the \_\_\_\_\_ tool without which the workman can never attain true \_\_\_\_\_: he did not know the \_\_\_\_\_ of any of the parts he was building, and without the \_\_\_\_\_ he was artistically \_\_\_\_\_. It was not by accident that doctors and lawyers and butchers invented \_\_\_\_\_ but secret \_\_\_\_\_ for the things they did; to possess the \_\_\_\_\_ was to know the \_\_\_\_\_. With correct \_\_\_\_\_ one entered into a new world of \_\_\_\_\_, became the member of an arcane brotherhood, a sharer of mysteries \_\_\_\_\_, and in the end a performer of \_\_\_\_\_. Without the names one remained a \_\_\_\_\_ or, in the case of boatbuilding, a mere carpenter.”

James Michener, \_\_\_\_\_

## My LotD List:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

IMPLEMENT ideas I can use or adapt for use:

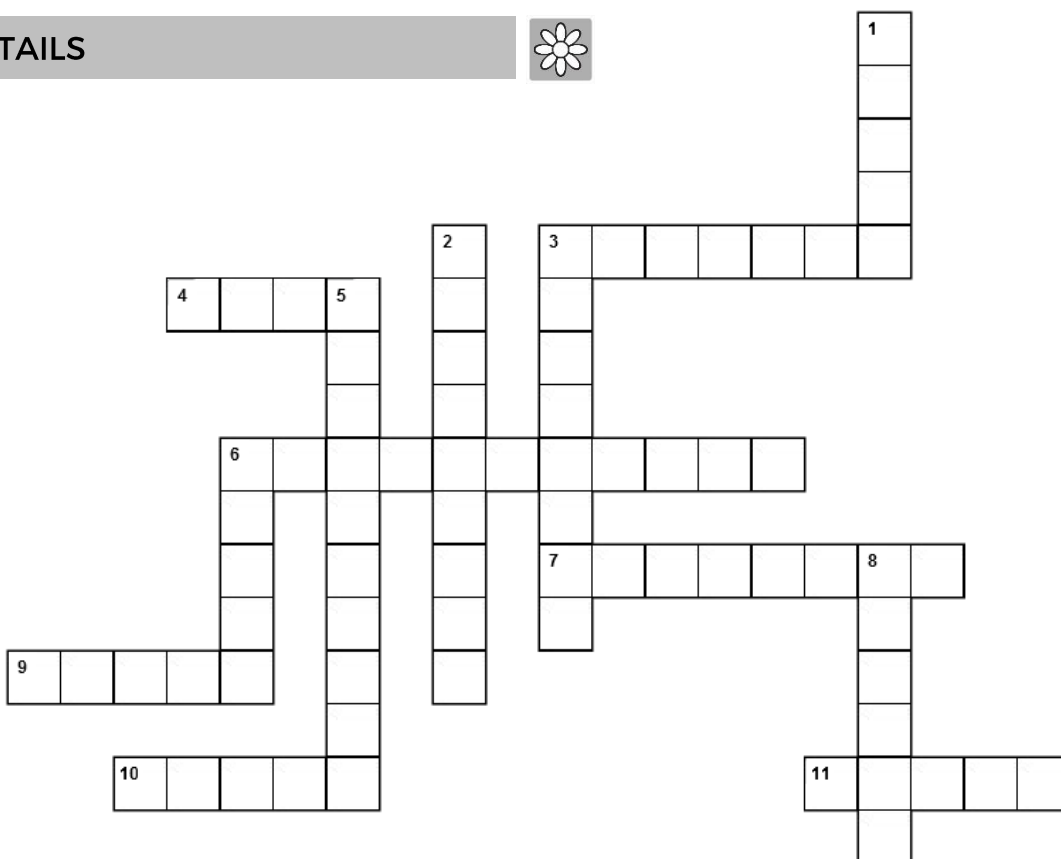
## LotD Question Stems:

- What words would a \_\_\_\_\_ (insert discipline) use to describe this?
- What are synonyms for \_\_\_\_\_, and why are they more or less accurate than \_\_\_\_\_?
- How important is the understanding of the term \_\_\_\_\_ to being able to \_\_\_\_\_ (insert skill or task)?

## Pairs nicely with:

- Details
- Patterns
- Rules

### DETAILS



#### ACROSS

- Parts of a whole; the \_\_\_\_\_ of 6 are 1, 2, 3, & 6.
- Facts and statistics collected into a set; \_\_\_\_-driven
- Specifics; sounds picky; I want the \_\_\_\_\_ before I decide.
- Essential parts; Periodic Table of the \_\_\_\_\_.
- Hints; Col. Mustard in the Library with the Knife
- True statements about a topic; opposite of opinion
- Individual articles; often part of a set; This checkout is for 15 \_\_\_\_\_ or fewer.

#### DOWN

- Thoughts about something; lightbulbs
- Precise details; I didn't get into the \_\_\_\_\_ of it.
- Specific aspects of an item; often positive; The TV has lots of great \_\_\_\_\_.
- Characteristic parts of someone or something; The \_\_\_\_\_ of a triangle include 3 sides, and 3 angles.
- Pieces; automobile or body \_\_\_\_\_; elements of a whole
- Distinguishing qualities; often used in genetics. He has a lot of positive \_\_\_\_\_ he inherited from his mother.



1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

IMPLEMENT ideas I can use or adapt for use:

#### Details Question Stems:

- What features are characteristic of \_\_\_\_\_?
- How is this different from \_\_\_\_\_?
- How would you determine if this characteristic is essential?
- What would happen if we eliminated \_\_\_\_\_? Would it change \_\_\_\_\_ in an important way?

#### Pairs nicely with:

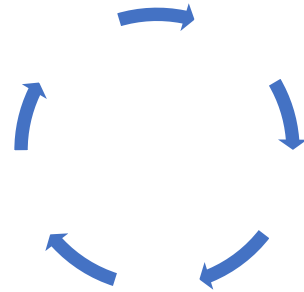
- Big Idea
- Patterns
- Language of the Discipline

## PATTERNS



Patterns in my discipline:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



- Book Recommendation: *Patterns in Nature: Why the Natural World Looks the Way It Does* by Phillip Ball
- Also, there is a wide variety of books available in many content areas, from *The Tiny Seed* by Eric Carle for as young as Pre-K to the one above for teens and adults.
- You can find a list of books specifically for math at [carolhurst.com/subjects/math/patterns.html](http://carolhurst.com/subjects/math/patterns.html).

IMPLEMENT ideas I can use or adapt for use:

Patterns Question Stems:

- Which of the recurring events do you see as negative? Positive? Most likely to lead to change?
- Why do you think these elements/ideas/events/etc. are repeated time and time again?
- How can we predict what will happen next based on what has happened so far?
- What would happen if we changed the order in which \_\_\_\_\_ occurred?

Pairs nicely with:

- Big Idea
- Ethics
- Rules

## RULES



Rules include...

- st \_\_\_\_\_
- di \_\_\_\_\_
- m \_\_\_\_\_
- o \_\_\_\_\_
- u \_\_\_\_\_ b \_\_\_\_\_

A rule in my discipline is \_\_\_\_\_.

Rules Question Stems:

- What are some unstated rules in \_\_\_\_\_.
- What has to happen in order for \_\_\_\_\_ to occur/happen/work well?

IMPLEMENT ideas I can use or adapt for use:

Pairs nicely with:

- Patterns
- Ethics

## TRENDS



What's your least favorite fashion trend in history? \_\_\_\_\_

What is a trend in education? \_\_\_\_\_

What's the difference between a fad and a trend?

Working with Trends, keep in mind:

- It's eras/-isms/\_\_\_\_\_
- Look for \_\_\_\_\_ of the trend & \_\_\_\_\_ influencing the trend.
- Look for \_\_\_\_\_ of change and stasis.
- Look for \_\_\_\_\_ & relationships. Do elements or groups move closer or away from each other?
- Trends are always \_\_\_\_\_.
- Look for \_\_\_\_\_ among trends.
- Overlap the trends.
- Ian says it's \_\_\_\_\_ in change over time.

IMPLEMENT ideas I can use or adapt for use:

Trends Question Stems:

- Is the trend toward more or less/fewer .....? What causes are influencing this trend, and which is the most powerful cause?
- What is the strongest force in opposition to the trend?
- How is the trend connected to \_\_\_\_\_ trend?

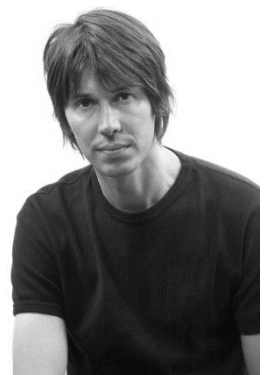
Pairs nicely with:

- Over Time
- Details
- Ethics

UNANSWERED QUESTIONS



"I'm comfortable with the \_\_\_\_\_—that's the point of science. There are places out there, billions of places out there, that we know \_\_\_\_\_ about. And the fact that we know nothing about them excites \_\_\_\_\_ me, and I want to go out and find out about them. And that's what \_\_\_\_\_ is. So I think if you're not \_\_\_\_\_ with the \_\_\_\_\_, then it's difficult to be a scientist... I don't need an answer. I don't need answers to everything. I want to have answers to \_\_\_\_\_." - Physicist Brian Cox



What is a question you do not know the answer to because the answer is unknowable? \_\_\_\_\_

What is something you do not know the answer to but you could find with currently available knowledge? \_\_\_\_\_

What is something you know, but other people disagree with you about? \_\_\_\_\_

How could you use the dice game in your class?

Two reasons Unanswered Questions is a particularly valuable element of D & C:

1. Comfort with \_\_\_\_\_
2. Key factor in being a \_\_\_\_\_

We use it to explore and \_\_\_\_\_ that \_\_\_\_\_ as we move from \_\_\_\_\_ to \_\_\_\_\_.

Always circle back to available \_\_\_\_\_.

IMPLEMENT ideas I can use or adapt for use:

Unanswered Questions Question Stems:

- What would we need to know to be able to answer this question?
- How important is it that this question be answered?
- What other answered questions relate to this one?
- What might happen if \_\_\_\_\_ were solved/answered?
- What resources do you need to help you answer these questions?

Pairs nicely with:

- Over Time
- Details
- Ethics

## ETHICS



- v \_\_\_\_\_
- What is \_\_\_\_\_?
- f \_\_\_\_\_
- p \_\_\_\_\_
- c \_\_\_\_\_
- s \_\_\_\_\_
- j \_\_\_\_\_
- m \_\_\_\_\_

Is Goldilocks a burglar?

What ethical issues exist in your content?

What ethical issues could you overlay onto your content?

Resource: [plagamme.com](http://plagamme.com)

IMPLEMENT ideas I can use or adapt for use:

Ethics Question Stems:

- What controversies do we see? Which is most divisive?
- What biases/prejudices do you see?
- If the people had followed the rules, how would it have ended differently?
- In what was is \_\_\_\_\_ cheating?
- Would it be ethical to \_\_\_\_\_ and why/why not?
- Would this have been more/less ethical in the past/future?

Pairs nicely with:

- Rules



- Perspective
- Details

## Big Ideas



Capture everything you \_\_\_\_\_ about something in one \_\_\_\_\_.

What's your sentence?

The Big Idea is the \_\_\_\_\_ idea of any \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.

agree or disagree: Simple concepts have simple Big Ideas.

Always \_\_\_\_\_ the Big Idea with \_\_\_\_\_ (or other element of the framework).

Turn the icon \_\_\_\_\_ to make it like a funnel.

This is inductive reasoning, so let students work from examples to the Big Idea.

IMPLEMENT ideas I can use or adapt for use:

### Big Ideas Question Stems:

- What overarching statement can we make to best define/describe \_\_\_\_\_?
- How does the Big Idea of \_\_\_\_\_ compare to the Big Idea of \_\_\_\_\_?
- Which Details argue against this Big Idea?
- What else can we apply this Big Idea to that we've learned previously?
- Using at least three elements of the Depth & Complexity framework, support the Big Idea that \_\_\_\_\_.

Pairs nicely with:

- Details
- Across Disciplines
- Patterns
- Multiple Perspectives



## Supporting Big Ideas with Evidence



IDENTIFY A UNIVERSAL  
THEME & WRITE IT AS A  
STATEMENT IN THE ROOF.

MAKE A VALUABLE CONNECTION TO CONTENT, YOURSELF, OR THE WORLD		

Is what you saw in the video good, bad, or neutral? \_\_\_\_\_

The obsolete problem I thought of is \_\_\_\_\_

In my discipline, something that has changed over time is \_\_\_\_\_

\_\_\_\_\_

Something that has stayed the same is \_\_\_\_\_

Ready to do some fun math???

	DISTANCE	RATE	TIME	
FIRST PART	$d$	105 mph	$t$	FP:
SECOND PART	$555 - d$	115 mph	$5 - t$	SP:
TOTAL	555 miles	-----	5 hours	

Since the two distances add up to \_\_\_\_\_, we’re going to add the two distance expressions, and set their sum equal to the given total number of miles, giving us:

\_\_\_\_\_ = \_\_\_\_\_ + \_\_\_\_\_

Total Distance                      FP                      SP

Then we’ll solve (yes, all of us, not the just the mathemagicians!!!!):

\_\_\_\_\_ = \_\_\_\_\_ + \_\_\_\_\_ - \_\_\_\_\_  
 \_\_\_\_\_ = \_\_\_\_\_ - \_\_\_\_\_  
 \_\_\_\_\_ = \_\_\_\_\_  
 \_\_\_\_\_ =  $t$

According to our grid, “ $t$ ” stands for the time spent on the first part of the trip, so our answer is "The plane flew for \_\_\_\_\_ at 105 mph and \_\_\_\_\_ at 115 mph."

You totally did it. Just like that. #mathrules

IMPLEMENT ideas I can use or adapt for use:

**Over Time Question Stems:**

- What forces do you think are acting on \_\_\_\_\_ to force change? To create stasis?
- Which is better: the way this \_\_\_\_\_ was in the past, the way \_\_\_\_\_ is now, or how \_\_\_\_\_ will be in the future?
- Why is \_\_\_\_\_ changing? Why is \_\_\_\_\_ not changing?
- Is \_\_\_\_\_ changing faster than \_\_\_\_\_ was before?
- Will \_\_\_\_\_ continue to change at the same rate of speed?

**Pairs Nicely With:**

- Patterns
- Trends
- Details



Perspective is an art technique for creating an \_\_\_\_\_ of three dimensions (depth & space) on a two-dimensional (flat) surface.

Perspective is what makes a painting seem to have \_\_\_\_\_, \_\_\_\_\_, and look "\_\_\_\_\_."

Perspective is \_\_\_\_\_.

It includes:

- Different \_\_\_\_\_.
- It's often dependent upon \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- It's different ways of \_\_\_\_\_ and \_\_\_\_\_.
- It is affected by \_\_\_\_\_ and \_\_\_\_\_.

Perspective affects interpretation of:

- E \_\_\_\_\_
- A \_\_\_\_\_
- F \_\_\_\_\_

**You try!**

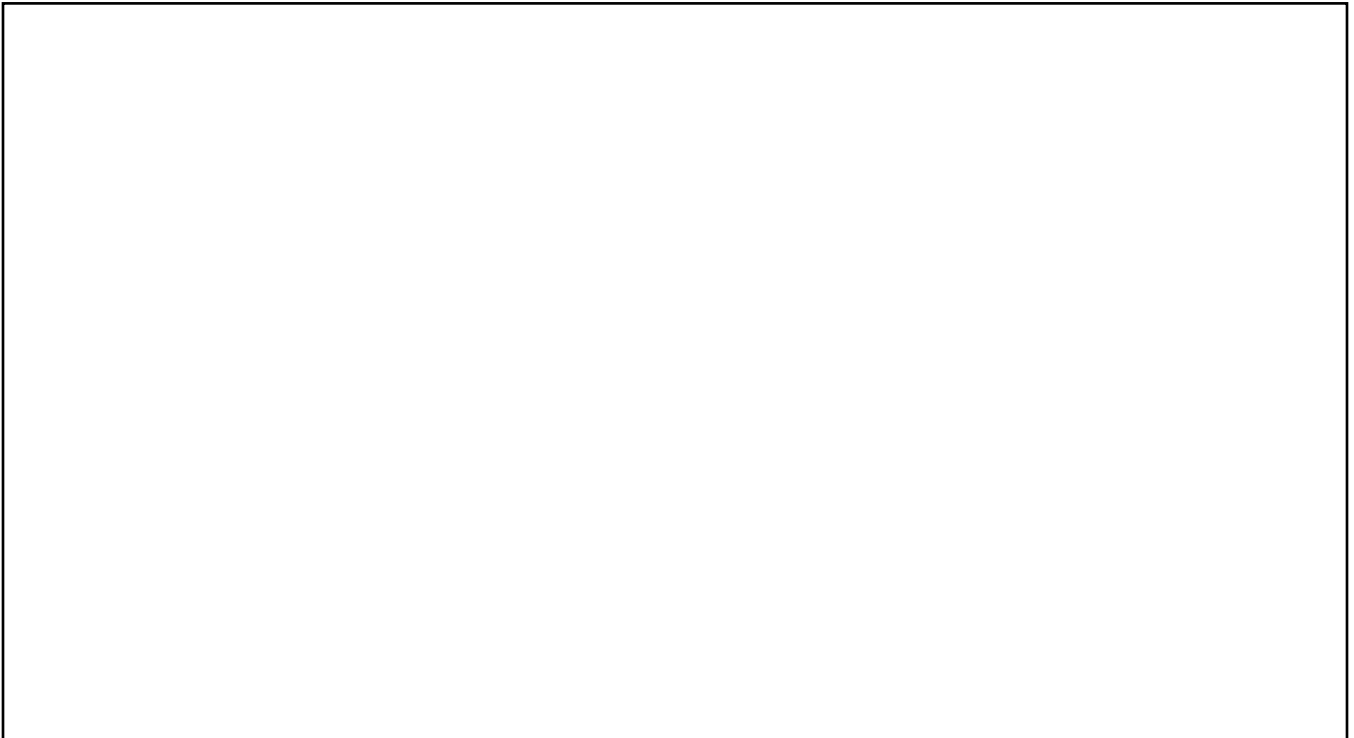
1. Draw a horizon line (just a horizontal line anywhere near the middle of the box).
2. Now, draw a dot on that line. It does not need to be in the middle. (This is called the vanishing point. It's an imaginary point directly in front of the viewer's eyes.)
3. Draw a square or rectangle underneath the horizon line, anywhere.
4. LIGHTLY draw lines from all four corners of the square or rectangle to the vanishing point.
5. Draw in the back edge of the square/rectangle. This line MUST be horizontal. Just choose a distance that looks about right.
6. Add in the other back edge.
7. Darken the remaining edges.
8. Now draw a square or rectangle above the horizon line, anywhere.
9. LIGHTLY draw lines from all four corners of the square or rectangle to the vanishing point.
10. Draw in the back edge of the square/rectangle. This line MUST be horizontal. Just choose a distance that looks about right.
11. Add in the other back edge.
12. Darken the remaining edges.
13. Now draw a square or rectangle on the horizon line.
14. LIGHTLY draw lines from all four corners of the square or rectangle to the vanishing point.
15. Add in the back edge. (Only one edge will be visible in this perspective.)

16. Erase guide lines, and then shade and shadow to your heart's content.

17. Can you try it with other shapes???

Keep in mind:

- **Objects above the horizon line are drawn as if you are looking up at them** (you see the bottom of the object)
- **Objects below the horizon line are drawn as if you are looking down at them** (you see the top of the object)
- **Objects that are neither above nor below the horizon line are drawn as if you are looking directly at them**

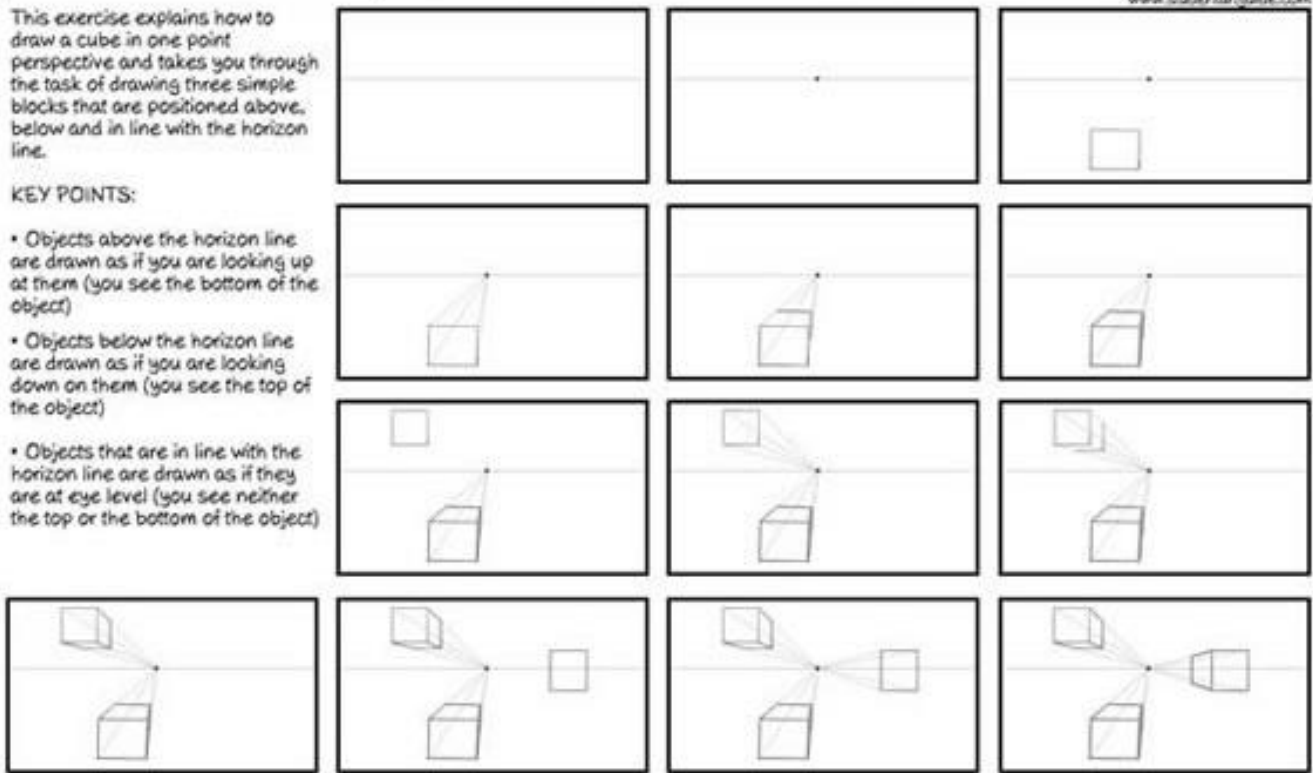


# 1 Point Perspective: Cubes

This exercise explains how to draw a cube in one point perspective and takes you through the task of drawing three simple blocks that are positioned above, below and in line with the horizon line.

## KEY POINTS:

- Objects above the horizon line are drawn as if you are looking up at them (you see the bottom of the object)
- Objects below the horizon line are drawn as if you are looking down on them (you see the top of the object)
- Objects that are in line with the horizon line are drawn as if they are at eye level (you see neither the top or the bottom of the object)



This image from: [studentartguide.com/articles/one-point-perspective-drawing](http://studentartguide.com/articles/one-point-perspective-drawing)

Get ideas for perspective art projects/lessons at: [pinterest.com/artgirl67/art-lesson-ideas-perspective](https://pinterest.com/artgirl67/art-lesson-ideas-perspective)

Watch a short video (or show to students): [youtu.be/zrLBNYA\\_KNE](https://youtu.be/zrLBNYA_KNE)

IMPLEMENT ideas I can use or adapt for use:

## Multiple Perspectives Stems:

- Why would \_\_\_\_\_ interpret this data differently from \_\_\_\_\_?
- What biases are at work here? Which one is most influential?
- To what extent is this influenced by prejudice?
- Who might see this differently?
- Whose perspective do most people agree with and why?
- Which perspective is hardest to defend?

## Pairs Nicely With:

- Across Disciplines
- Unanswered Questions
- Patterns

### ACROSS DISCIPLINES



What was your undergraduate major? \_\_\_\_\_

Find the closest major to yours from the list. What is it? \_\_\_\_\_

In what way(s) are they connected? Come up with at least three.

- 1.
- 2.
- 3.

What are 3 things you teach that lend themselves to an Across Disciplines approach?

1.

2.

1.

2.

1.

2.

### Across Disciplines Question Stems:

- How is this related to \_\_\_\_\_?
- What would a \_\_\_\_\_ think about this?
- Which of the common elements among these topics is the strongest bond?



### Pairs Nicely With:

- Multiple Perspectives
- Trends
- Patterns

IMPLEMENT ideas I can use or adapt for use:

### Ideas for Implementation:

- Use for pre-assessment
- Use as a translation strategy/anticipatory set
- Image analysis
- Differentiation paths
- Working individually or as group, flowing in and out applying different lenses
- Poster or brochure guidelines
- Use as look-fors instead of study questions

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