

Teaching Cross-Curricular Argumentation (CCAR)

A Higher Order Thinking & Reasoning Routine

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Today's Learning Goals

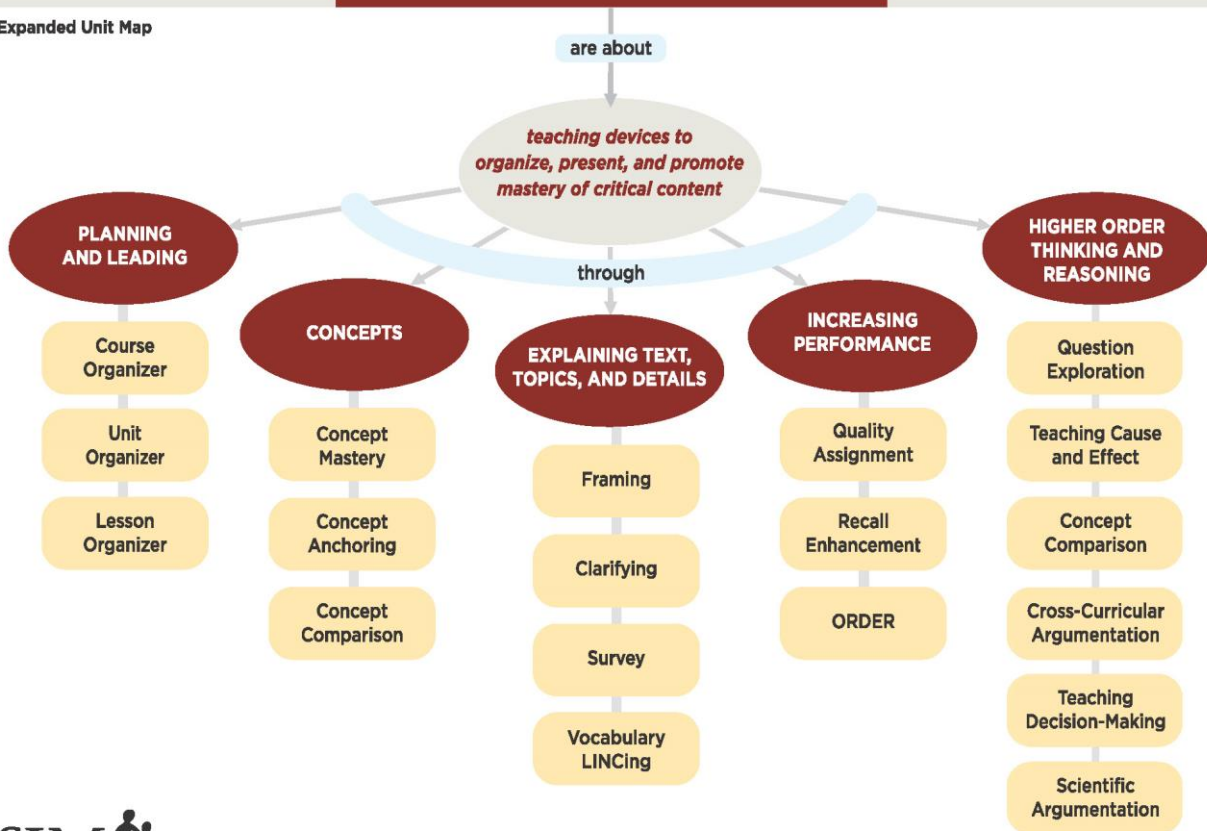
- ❖ **To increase expertise in using argumentation in the classroom**
- ❖ **To develop higher order thinking & reasoning skills in students through the use of argumentation**
- ❖ **To enhance the ability to use argumentation in the classroom in a variety of ways**



Four Basic Principles of Content Enhancement Routines

- A way of teaching academically diverse populations:
- Both group and individual needs of students are valued and met.
- Integrity of the content is maintained.
- Critical features of the content are selected and transformed in a manner that promotes learning.
- Instruction is carried out in partnership with students.

Expanded Unit Map



Supporting Research



Initial research was pulled from Content Enhancement Scientific Argumentation Routine



Instruction in Scientific Argumentation Routine yielded significantly higher test scores for students.



Teachers requested additional argumentation procedures

Purpose of the Strategy

Reasoning is a critical skill for all students.

Students ...

Encounter claims in all
academic classes

Encounter claims in a
variety of sources

**Purpose is to help students clarify, analyze,
and evaluate arguments.**

When Used/ Impact

❖ When Used:

- ❖ When students are reviewing evidence as part of instruction such as in preparation for writing or discussion.

❖ Impact:

- ❖ Argumentation reasoning components and procedures of the routine have an extensive evidence and research base including published research on specific instructional graphics and procedures e.g., Scientific Argumentation (Bulgren, Ellis & Marquis, 2014), as well as overviews of a wide range of research on argumentation e.g., Driver, R., Newton, P., & Osborne, D. (2000); Duschl, R.A., & Osborne, J. (2002); Linn, M.C., Clark, D., & Slotta, J.D. (2003).



Based on:



Standards – standards require students to focus on higher order thinking & reasoning.



Diversity – Students with a wide range of achievement and ability levels are taught in inclusive content classes and require instructional procedures responsive to their diverse needs.

Rationales & Needs

Spiraled Standards for R.2.4 Argument

ELA.12.R.2.4 Compare the development of multiple arguments in related texts, evaluating the validity of the claims, the authors' reasoning, use of the same information, and/or the authors' rhetoric.

ELA.11.R.2.4 Compare the development of multiple arguments on the same topic, evaluating the effectiveness and validity of the claims, the authors' reasoning, and the ways in which the authors use the same information to achieve different ends.

ELA.10.R.2.4 Compare the development of two opposing arguments on the same topic, evaluating the effectiveness and validity of the claims, and analyzing the ways in which the authors use the same information to achieve different ends.

ELA.9.R.2.4 Compare the development of two opposing arguments on the same topic, evaluating the effectiveness and validity of the claims.

ELA.8.R.2.4 Track the development of an argument, analyzing the types of reasoning used and their effectiveness, identifying ways in which the argument could be improved.

ELA.7.R.2.4 Track the development of an argument, analyzing the types of reasoning used and their effectiveness.

ELA.6.R.2.4 Track the development of an argument, identifying the types of reasoning used.

ELA.5.R.2.4 Track the development of an argument, identifying the specific claim(s), evidence, and reasoning.

ELA.4.R.2.4 Explain an author's claim and the reasons and evidence used to support the claim.

ELA.3.R.2.4 Identify an author's claim and explain how an author uses evidence to support the claim.

ELA.2.R.2.4 Explain an author's opinion(s) and supporting evidence.

ELA.1.R.2.4 Identify an author's opinion(s) about the topic.

ELA.K.R.2.4 Explain the difference between opinions and facts about a topic.



Science

HS-LS3-2 Heredity: Inheritance and Variation of Traits

Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

Performance Expectation

Grade: High School (9-12)

HS-LS4-5 Biological Evolution: Unity and Diversity

Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

Performance Expectation

Grade: High School (9-12)

Social Science

SS.912.A.3.2

Examine the social, political, and economic causes, course, and consequences of the second Industrial Revolution that began in...

Belongs to: [Analyze the transformation of the American...](#)

Math

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model* ★

Cluster: [Understand and evaluate random processes underlying statistical experiments. \(Algebra 2 - Supporting Cluster\)](#) -

Understanding Arguments & Argumentation

Argument: a claim backed by reasons that are supported by evidence.

Argumentation: the process of making a claim, presenting evidence, and backing it up by producing reasons why the evidence allows the claim to be made.

(Toulmin, 2004)

Overview of the Guidebook



Chapter 1 - Introduction to the Guidebook



Chapter 2 - Overview of the Cross-Curricular Argumentation Guides



Chapter 3 - Explanation of instructional procedures



Chapter 4 - Suggestions for evaluating student learning



Chapter 5 - Suggestions of extending learning



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Chapter 2: The Cross-Curricular Argumentation Guide



Higher Order Thinking & Reasoning Routines



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graph LR; A[Identify Critical Question] --> B[Build Understanding]; B --> C[Summarize the Answer];
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**Identify Critical
Question**

**Build
Understanding**

**Summarize the
Answer**

Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.

4. Identify other arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

2. List the evidence (facts, data, authority, theory, precedent)

3. Analyze the reasoning (cause-effect, correlation, generalization)

4. Identify other arguments for or against the claim (rebuttal, counterargument, corroboration).

5. Make a judgment about quality of evidence (accurate, adequate, objective, relevant), reasoning (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

The Embedded Strategy: CLAIMS



Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.

Claim: Statement that something is true.
Clarify the claim with any **qualifier** and define **key terms**.

4. Identify other arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide B

Name:

Date:

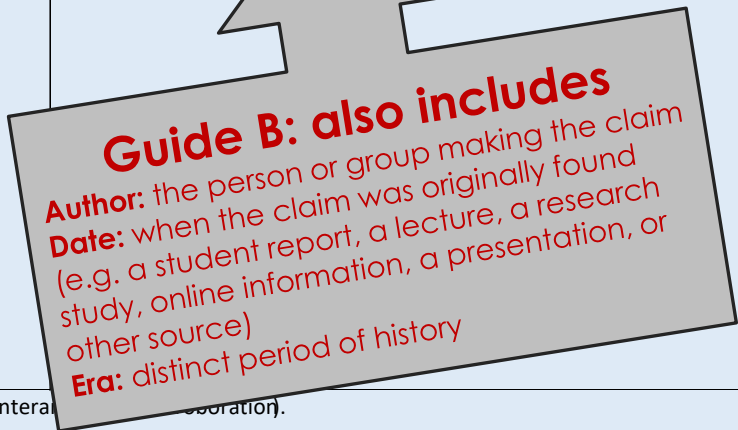
Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

2. List the evidence (facts, data, authority, theory, precedent)

3. Analyze the reasoning (cause and effect, correlation, generalization)



Guide B: also includes
Author: the person or group making the claim
Date: when the claim was originally found
(e.g. a student report, a lecture, a research study, online information, a presentation, or other source)
Era: distinct period of history

4. Identify other arguments for or against the claim (rebuttal, counterargument, collaboration).

5. Make a judgment about quality of evidence (accurate, adequate, objective, relevant), reasoning (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

The Claim

- ❖ **A claim** can come from a textbook, magazine, newspaper, video, or an individual.
- ❖ **A claim** can be implied or embedded in a text.
 - ❖ Sometimes a claim must be identified and then put into a clear statement
- ❖ If **claim** contains any **key words** or information necessary for understanding & analyzing the claim (**qualifiers**) , those words & qualifiers should be explained below the claim.

Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.



3. Analyze the reasoning.

4. Identify other arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

2. List the evidence (facts, data, authority, theory, precedent)

3. Analyze the reasoning (cause-effect, correlation, generalization)



Guide B: includes facts, data, authority, precedent

Facts: things that are known, observable, or proven to be true by research

Data: information usually in the form of numbers or statistics

Authority: individuals or groups with high level of knowledge in a field

Theory: formal ideas that are intended to explain something

Precedent: laws, rules, customs, or other guidelines that are set up by social institutions to govern behavior

4. Make a judgment about quality of evidence (accurate, adequate, objective, relevant), reasoning (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide A

Name:

Date:

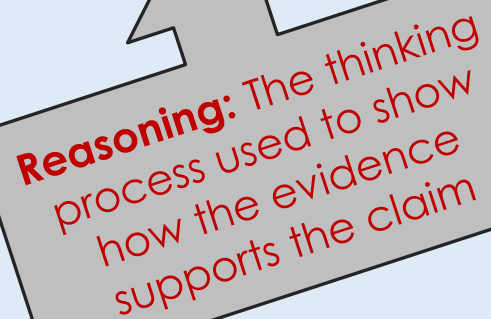
Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.



Reasoning: The thinking process used to show how the evidence supports the claim

4. Identify other arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

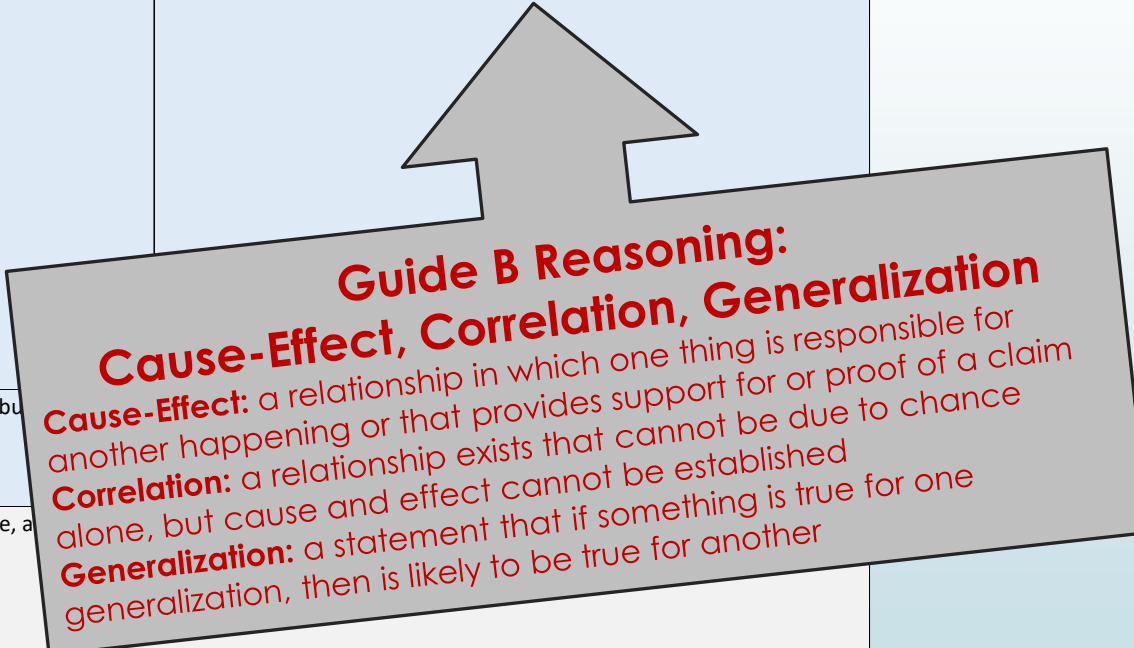
2. List the evidence (facts, data, authority, theory, precedent)

3. Analyze the reasoning (cause-effect, correlation, generalization)

4. Identify other arguments for or against the claim (rebuttal, counterclaim)

5. Make a judgment about quality of evidence (accurate, adequate, relevant)

6. State why you accept or reject the claim.



Guide B Reasoning:

Cause-Effect: a relationship in which one thing is responsible for another happening or that provides support for or proof of a claim

Correlation: a relationship exists that cannot be due to chance alone, but cause and effect cannot be established

Generalization: a statement that if something is true for one generalization, then is likely to be true for another

Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.

Other Arguments



4. Identify other arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

Guide B: Other Arguments

2. List

Rebuttal: a statement that a claim is wrong and why it is wrong

Counterargument: a statement based on evidence that supports a different claim

Corroboration: evidence that confirms or supports the original claim

effect, correlation, generalization)

4. Identify other arguments for or against the claim (rebuttal, counterargument, corroboration).

5. Make a judgment about quality of evidence (accurate, adequate, objective, relevant), reasoning (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.

4. Identify the arguments for or against the claim.

5. Make a judgment about quality of evidence, reasoning, and other arguments.

6. State why you accept or reject the claim.

Judgments: the process of forming a decision through careful evaluation

Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

2. List the evidence (facts, data, authority, theory, precedent)

3. Analyze the reasoning (cause-effect, correlation, generalization)

Judgments:
Quality of Evidence (accurate, adequate, objective, relevant)
Reasoning (type of reasoning)
And Other Arguments

4. Identify other arguments for or against the claim (rebuttal, counterargument)

5. Make a judgment about quality of evidence (accurate, adequate, objective, relevant), reasoning (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

Cross-Curricular Argumentation Guide A

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms.

2. List the evidence.

3. Analyze the reasoning.

4. Identify

5. Make

arguments.

6. State why you accept or reject the claim.

**Accept or Reject the
Claim.
Explain your Decision**



Cross-Curricular Argumentation Guide B

Name:

Date:

Class:

Topic:

1. Clarify the claim with any qualifier and define key terms (including author, date, source, era).

2. List the evidence (facts, data, authority, theory, precedent)

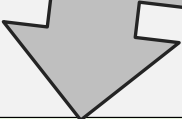
3. Analyze the reasoning (cause-effect, correlation, generalization)

4. Evaluate the evidence (sufficient, adequate, objective, relevant), **reasoning** (type of reasoning), and other arguments.

5. Make a judgment (accept/reject), **reasoning** (type of reasoning), and other arguments.

6. State why you accept or reject the claim.

Guide B:
State whether to accept or reject claim.
Explain your Decision.



Use


Use Guide A if students are in earlier grade levels, or students need more instructional supports.

Use

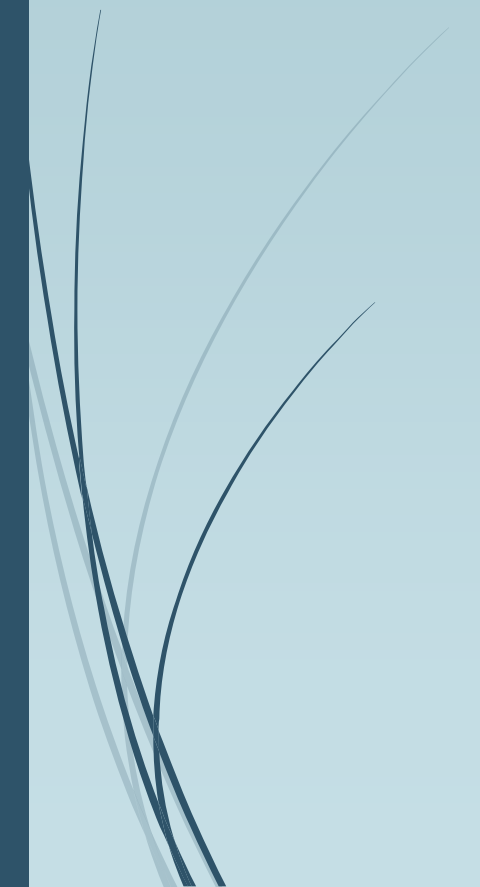
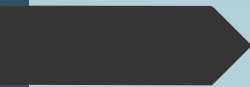
Use Guide A as an introduction to argumentation, gradually moving to the use of Guide B when students are ready.

Use

Use guide B only when students are in upper grade levels or have received adequate background preparation in argumentation.



**How Do I
Determine
Which
Guide A or
B to Use?**



Pg. 11

Chapter 3: Using the Guide with Students

Cue – Introduce the Cross-Curricular Argumentation Routine and guide to students

Do – Teacher and class co-construct the device using the CLAIM Linking Steps.

Review – Confirm student **knowledge** gained from using the Guide and the **process steps** of using the guide.

**Cue-Do-Review
Instructional
Sequence**

Upon every use of the routine:

Give all students a blank copy of the guide and prompt them to take notes on it (explain participation expectations of collaboration),

Provide an overview of the strategic steps found in each section of the guide,

Explain the importance of the topic or issue,

and

Explain the importance of engaging in higher order thinking and reasoning associated with analyzing an argument.



CUE

Do – Incorporating CLAIMS



Clarify the claim and qualifier and define key terms.



List the evidence.



Analyze the reasoning.



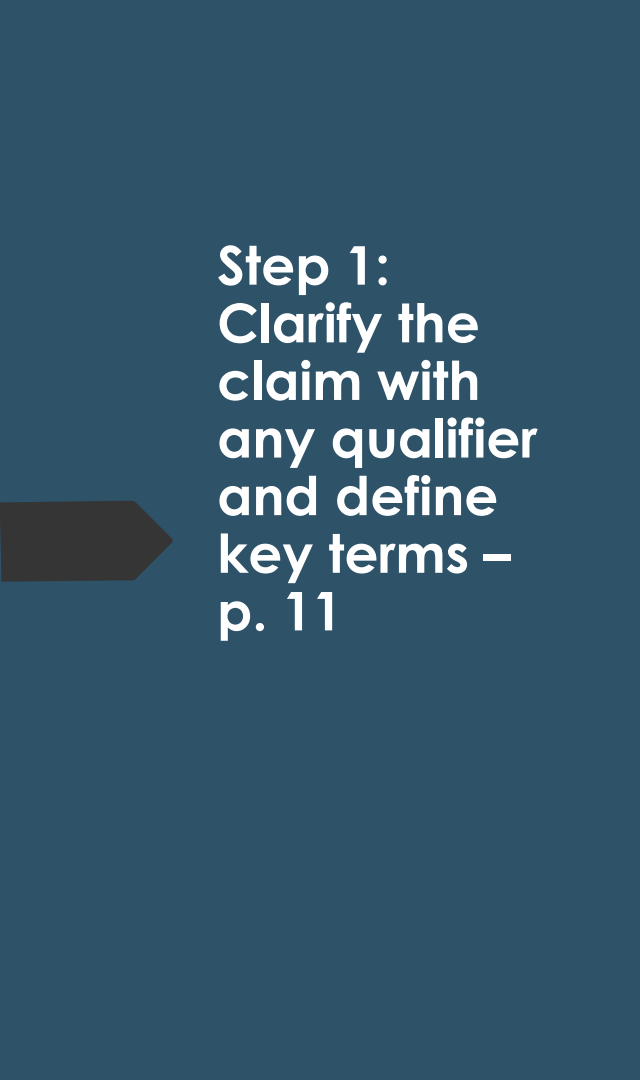
Identify other arguments for or against the claim.



Make judgments about the quality of the evidence, reasoning, and other arguments.



State why you accept or reject the claim.



Step 1:
Clarify the
claim with
any qualifier
and define
key terms –
p. 11

- ▶ **A claim focuses on:**
 - ▶ Understanding the **claim**
 - ▶ Identifying and underlining any **qualifiers**
 - ▶ Providing adequate background knowledge of **key terms**
 - ▶ *(if Guide B is selected, guidance on identifying author, date, source, & era)*

Step 2: List the Evidence – p. 12

► Evidence focuses on:

- Identifying evidence
 - Facts or observations presented to support a claim
- Restating evidence in short, accurate statements
- **For Guide B**, guidance on types of evidence (facts, data, authority, theory, precedent)
- Whenever possible tie evidence to everyday usage.

Step 3: Analyze the Reasoning – p. 13

- ▶ Reasoning focuses on:
- ▶ Understanding **how** the author used reasoning **to support or prove the claim**
- ▶ Explaining that connection in the students' own words
- ▶ (**If Guide B** is selected, guide students on identifying the author's reasoning by means of cause-effect, correlation, generalization)

Step 3: Analyze the Reasoning (cont.)

- Explain that authors often do not name the type of reasoning they use. Reasoning is implicit.
- When reasoning appears implicit, prompt students to ask, “Can the author’s reasoning be restated by asking one of the following sentence patterns that suggest cause-effect, correlation, or generalization:
 - “As a result of >>>, the author reasons that...”
 - “Since..., then...”
 - “Because ..., therefore...”
 - “If..., then...”

Step 4:
Identify other
arguments
for or against
the claim –
p. 14

► Other arguments

► Step 4 focuses on:

- Presenting other arguments that may **strengthen** or **weaken** the claim
- Identifying the source of other arguments, e.g. author's reasoning or other outside sources
- *If Guide B is selected, guide students on identifying **rebuttals, counterarguments, & corroboration***

Students' everyday usage

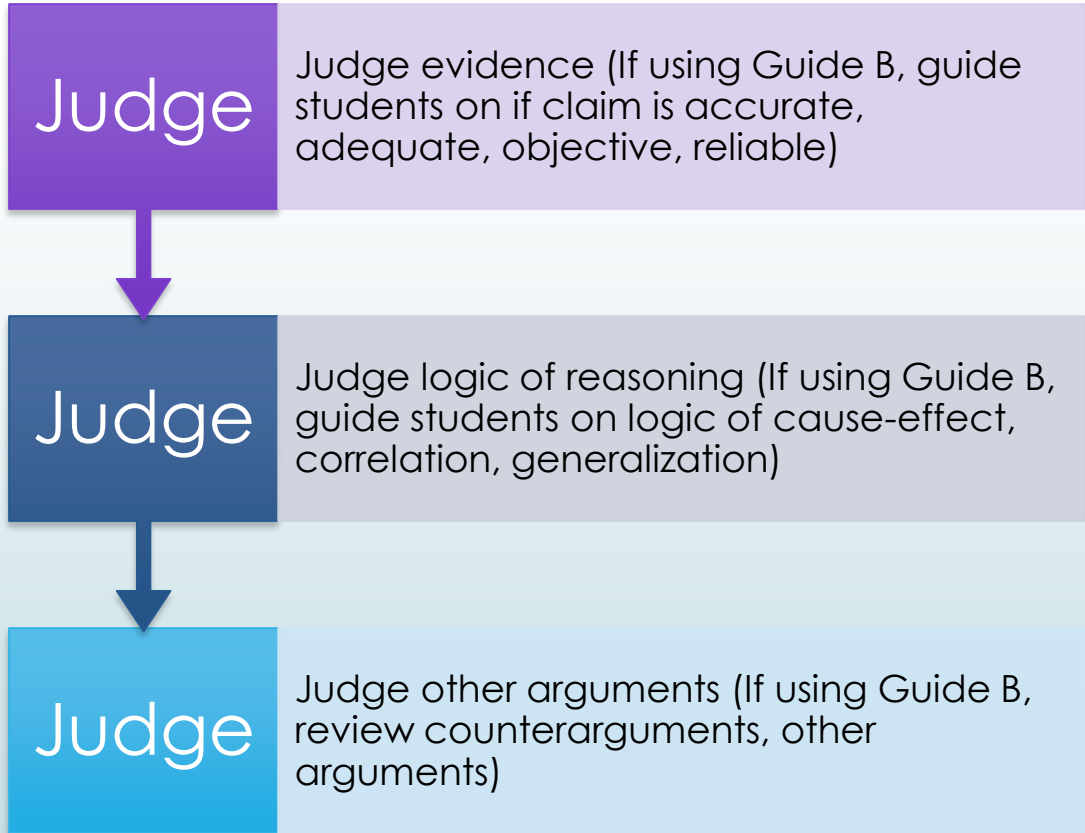


“That’s wrong because the numbers I have proves the opposite” **Rebuttal**

Well, I believe in the opposite of what you say based on the information I have.” **Counterargument**

I totally agree with you because I read that same thing online.”
Corroboration

Step 5: Make judgments about the quality of evidence, reasoning, and other arguments



Step 6: State why you accept or reject the claim – p. 15

- ▶ Step 6 focuses on
 - ▶ **A decision:** Does the student accept or reject the claim?
 - ▶ **An explanation for the decision:** Why? (based on quality of the claim, evidence, reasoning and/or other arguments)

Review

- **Content knowledge** of the Guide
- **Process and steps** of the routine
- **Generalization** of use of the routine to other content classes



**Appendix A –
Cross-
Curricular
Argumentation
Guides – p. 20**



Blank Guide A – p. 21



Blank Guide B – p. 22

**Appendix B:
Cross-
Curricular
Argumentation
Guides
(completed
examples) p.
23**



Guide A Examples –
p.24 – 39



Guide B Examples – p.
40 & 41



Steps for Guide A Cue Card – p. 43



Steps for Guide B Cue Card – p. 44



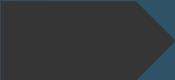
Definitions List for Guide A – p. 45



Definitions List for Guide B – p. 46



Teacher Implementation Cue Card –
p. 47



Appendix C – Instructional Supports for Instruction & Implementation



Checklist – p. 49



Stem Prompts – p. 50




Test – p. 51



Essay Outline – p. 52



Essay Sample – p. 53



Appendix D – Supports for Chapter 4

As you continue to use the Routine:

- ▶ Always be flexible
 - ▶ Begin structured and straightforward
 - ▶ Once students are familiar with routine, vary instructional scaffolds
- ▶ Support the use of additional strategies
- ▶ Collaborate with ESE and teachers with co-taught classes
- ▶ Share with teachers in your content and in other content areas
- ▶ Encourage generalization to other classes and the real world
- ▶ Encourage teacher collaboration
- ▶ Vary group structures
 - ▶ Begin developing with whole class
 - ▶ Once familiar with routine, have students work in small groups or with partner
 - ▶ Work toward students developing guides individually

Chapter 4: Evaluating Student Learning p. 18

► Supports in Appendix D

► Evaluate knowledge of the CLAIMS strategy

- Ask students to write the steps of the strategy from memory
- Assign Cross-Curricular Argumentation Checklist as a self-check – p. 49

► Use scaffolded assessments

- Argumentation Stem Prompts – p. 50
- Short Answer Test – p. 51

► Evaluate use of CCAR Guide to write an essay

- Steps in essay writing – outline p. 52
- Sample essay – p. 53

DELINEATING ARGUMENTS: CASE STUDY

School Conflict

ISSUE

Recently, a student came to school wearing a T-shirt with a provocative graphic on it and what some people viewed as misogynistic lyrics from a song by a popular rap artist. A teacher who was offended by the shirt referred the student to the office, where the assistant principal told him to go home, change the shirt, and never wear it to school again. When the student refused to do so, he was suspended for insubordination. In protest, a large group of sympathetic students produced and wore T-shirts that read, "Life's a b—... when you lose your right to free speech."

When asked to stop wearing the shirts, these students also refused to do so. Faced with the dilemma of what to do, the school administration is proposing changes to school policy and a dress code that prohibits clothing with any words, logos, graphics, or designer labels. Those opposed to the code claim that it essentially requires students to wear a school "uniform."

At a school board meeting, students and staff present arguments about the proposed policy change.

HIGH SCHOOL STUDENT

The junior class president, a male, has been one of the leaders of the T-shirt protest group. He sees the issue as a symbolic one, and is opposed to policies and actions that deny students' rights. His parents, among the more affluent families in the school district, are active members of the American Civil Liberties Union (ACLU) and supported the production of the protesters' T-shirts.

He presents the following argument:

Any restriction on student dress violates students' basic rights. Once a student clothing choice is prohibited because it is considered "offensive," a precedent is set for limiting free speech in all areas of school life.

Americans, including American high school students, are guaranteed the right to free speech by the US Constitution. The First Amendment in the Bill of Rights states, "Congress shall make no law... abridging the freedom of speech..."

Public schools are agencies of government, and therefore are expected to follow the law as established in the Constitution and Bill of Rights. The US Supreme Court has upheld the free speech rights of students. In a case similar to this one, Justice Abe Fortas wrote, "First Amendment rights, applied in light of the special characteristics of the school environment, are available to teachers and students..."

The school's argument to support banning the shirt was flawed. School officials said that the lyrics on the shirt were "offensive" and therefore "disruptive" to the school environment. As our protest T-shirts showed, however, there are many meanings for the word in question, most of which are not offensive to anyone. It is defined in the dictionary as meaning: "a female dog," "a difficult situation," or "a querulous, nagging complaint."

The protesters' T-shirts, which they were asked to remove, used the word to represent the "difficult situation" that will result if students' rights to free speech are not respected. The school administration has shown in a number of specific instances that it is more concerned with controlling student behavior than guaranteeing student rights. An example would be last spring in the student government elections, when posters making fun of some school rules were taken down.

In conclusion, restrictions on student dress violate students' basic rights. The school overstepped its bounds when it used an interpretation of the words on the shirt to argue that the shirt was offensive. The school's proposal of a more restrictive dress code will create a "difficult situation" in which students' rights may continue to be lost. Therefore, the wearing of such shirts should be allowed and the dress code should remain non-restrictive so that we don't set a precedent that limits free speech in all areas of school life.

HIGH SCHOOL PRINCIPAL

The high school principal, a woman, is concerned about disruptions in school resulting from the wearing of clothing that may be offensive to some students and staff members. While she was personally offended by the words on the T-shirt, she has also tried to listen to and reason with the protesting students, to little avail. Regarding student dress in general, she is concerned that many of her students lack the money to afford the designer label clothing worn by some of her more affluent students, and the class distinctions that result based mostly on student dress.

She presents the following argument:

The offensive T-shirt, and the student's refusal to remove it, put school administrators in a difficult, "no win" situation. When the assistant principal asked the student to go home and change his shirt, he was making a "reasonable request," as defined in the school's Code of Conduct. When the student refused, the administrator had no choice but to suspend him for "insubordination."

The school has over 1500 students and 100 staff members. Many staff members and a number of female students found the shirt's message and graphic to be offensive. In situations such as this one, the school administration must ensure that the school environment is not disrupted. Administrators often have to prioritize the "good of many" over the preferences of a few.

When the referring teacher and a group of students who accompanied her came to the office, they testified that they were "deeply offended" by how the shirt depicted women. They demanded that the student be sent home to change, and said they could not remain in class with him if he wore the shirt. In cases such as this, conflict often results. Our job is to prevent this sort of disruptive conflict.

Disruptive situations such as this incident can be prevented by a more uniform dress code. Shirts without any logos, graphics, or designer labels can not offend anyone, and will not be seen as expressions of style, economic status (or free speech, for that matter). A more uniform dress code will help remove distinctions of class and lead to a more unified school community.

In conclusion, and because having to decide what is acceptable or offensive and what is not is a "slippery slope," the school administration therefore proposes a stricter dress code, clearly describing what is acceptable, uniform dress – with no words, logos, or graphics visible. In so doing, we can reduce the wearing of offensive clothing, disruptive interpersonal conflict, and class distinctions in our high school.

PERSPECTIVES

Chapter 5: Extending Student Learning – p. 19

- **Incorporate Mini lessons**

- Claims
- Evidence
- Reasoning
- Faulty Reasoning
- Counterarguments & rebuttals

- **Introduce content specific vocabulary**

- For science: controlled studies, reliability, validity
- For social studies: legislation, rulings, primary sources, founding documents
- For ELA: character, plot, setting, conflict, resolution, theme, symbols, figurative language
- For math: equations, tables, charts, graphs, diagrams, word symbols

- **Use guides to prepare for debates**


- A debate claim, position, opinion, or statement – taking a side
- Reasoning or logical thinking
- Counterarguments consideration
- Conclusion

- **Introduce types of faulty reasoning**

- Red herring
- Bandwagon
- More



Where to Find Argumentative Texts

- ▶ Scientific articles
 - ▶ Newspaper articles
 - ▶ Legal documents
 - ▶ Political speeches
 - ▶ Advertising guidelines
- 

Ways to Use Cross-Curricular Argumentation

- ❖ **Help students understand argument format**
- ❖ **Develops student ability to analyze arguments**
- ❖ **Deepens student ability to evaluate arguments**
- ❖ **Gather information for crafting an argumentative paper**
- ❖ **Prepare for a debate**