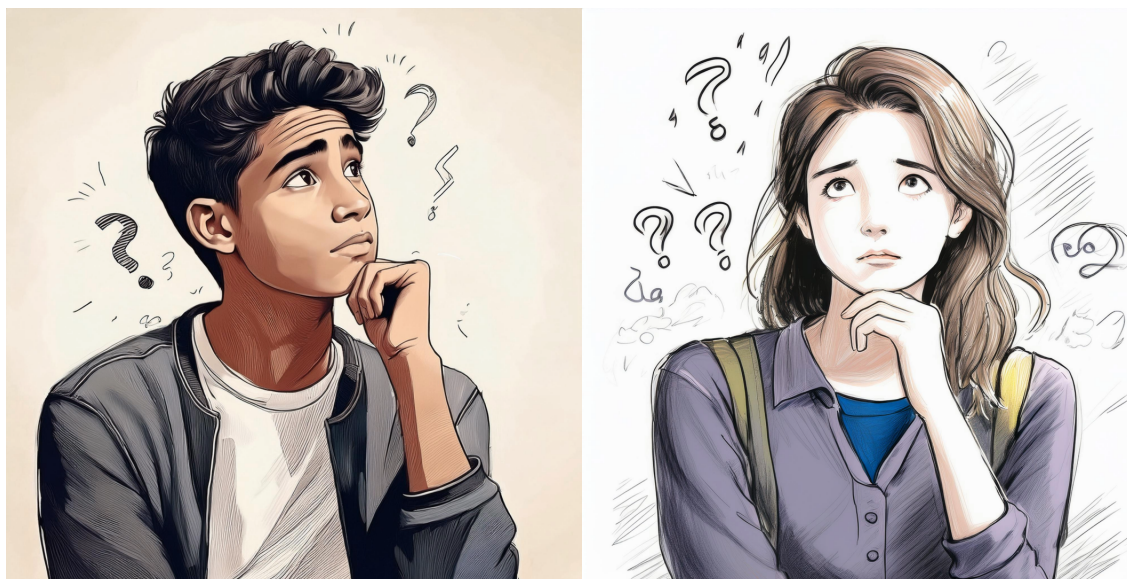


WHAT is the **TEACHING DECISION-MAKING ROUTINE**?

The *Teaching Decision-Making Routine* is a guidebook of instructional methods that teachers can use to help students engage in reasoning. Although “reasoning” has many definitions, it is used here to identify an issue, options that could respond to the issue, ranking those options, considering other options, and making and explaining that decision. This routine provides teachers with ways to help students make good decisions in many different areas of life. It is part of the SIM Higher Order Thinking and Reasoning (HOTR) routines.



WHEN do we need to make good decisions?

We all make decisions every day. However, sometimes decisions are made quickly and are soon regretted. Providing students with steps to make good decisions is useful in everyday life, civic duties, and content area classes. For example, we can use Higher Order Thinking and Reasoning (HOTR) to make connections and understand what type of reasoning is asked for in the following questions:

- Everyday life: Shall I take this job or stay in school?
- Civic duties: Should I attend next month’s school board meeting?
- Content area classes: Should there be term limits for Congress?

WHAT are everyday decisions?

Decisions we make everyday range from choosing fun vacations destinations to life and career decisions. For example:

1. Where shall we go on vacation?
2. How can I manage my time to get the history essay written?
3. Should I finish school or take this good job now? (see Fig. 1)

Figure 1. Decision-Making Guide: Should I Take This Job or Stay in School? (everyday decision)

Decision-Making Guide

Name: _____ Date: _____ Class: _____ Topic: _____

| 1. <u>Decide the Issue</u> | | To Take a Job Now or To Stay in School | | | | |
|--|--|--|--|---|--------------------|--|
| 3. <u>Create Important Information</u> | 2. <u>Enter Option A</u> | To Take a Job Now | | 2. <u>Enter Option B</u> | To Stay in School | |
| | 4. <u>Identify Reasons for Option A</u> | 5. <u>Set Rank</u> | | 4. <u>Identify Reasons for Option B</u> | 5. <u>Set Rank</u> | |
| I have just been offered a new job. I could start almost right away, and the pay is good. | I would like to have more money. | 4 | | The money would be great, but I may be able to make even more money if I have a degree. | 4 | |
| I would be travelling a lot to different states and not be with my family much. | I am able to help my family with the money. | 2 | | If I get a degree, I may be able to work closer to home. | 4 | |
| I only have a year to go in school to a degree that I know is important. | I have been in school a long time and am ready for a change. | 2 | | I would really have to work on my mindset and try to enjoy my last year of school. | 1 | |
| 6. <u>Identify Compromises/Alternatives</u> | | | | | | |
| I don't see any compromise right now. I must decide on the job within the week. Even if I wanted a job near me, none can be found. | | | | | | |
| 7. <u>Offer a Decision</u> | | | | | | |
| I have decided to stay in school. | | | | | | |
| 8. <u>Name Reasons for the Decision</u> | | | | | | |
| I am trying to think long-term. I think I will make more money over the years with the degree and have more choices. | | | | | | |

© J. Bulgren 2024

WHAT are civic duty decisions?

Decisions we make as a result of civic duties are everywhere. For example:

1. Which community volunteer organization should I volunteer for?
2. Who should I vote for in the next election?
3. How should I vote on use of pesticides in the city park?

Figure 2. Decision-Making Guide: To use or not use Chemical Pesticides (civic decision)

Decision-Making Guide

Name: _____ Date: _____ Class: _____ Topic: _____

| 1. <u>Decide the issue</u> | | Use of Chemical Pesticides | | | | |
|---|--|----------------------------|--|--|---|---------------------------|
| 3. <u>Create important information</u> Pesticide: substance to control pests and weeds Chemical pesticide: artificial substance to control pests and weeds Biological pest control: control of pests and weeds using other organisms, such as green lacewings that eat other insects such as aphids The Food & Drug Administration (FDA) regulates pesticides DDT: chemical pesticide dichlorodiphenyltrichloroethane | 2. <u>Enter Option A</u> Use chemical pesticides | | 2. <u>Enter Option B</u> Ban chemical pesticides | | | |
| | 4. <u>Identify reasons for option A</u> | | 5. <u>Set Rank</u> | 4. <u>Identify reasons for option B</u> | | 5. <u>Set Rank</u> |
| | <ul style="list-style-type: none"> • Government agencies such as the FDA check safety of chemical pesticides. | | 2 | <ul style="list-style-type: none"> • Biological pest controls like green lacewings can replace chemical pesticides. | | 2 |
| | <ul style="list-style-type: none"> • We need pesticides like DDT to control diseases like malaria. | | 3 | <ul style="list-style-type: none"> • Imported food is contaminated, so the ban should be worldwide. | | 1 |
| | <ul style="list-style-type: none"> • Pesticides are needed to produce enough food so people don't starve. | | 5 | <ul style="list-style-type: none"> • New pesticides cause even more cancer than older pesticides. | | 3 |
| <ul style="list-style-type: none"> • Some tests show that chemical pesticide amounts in our food are so small we don't have to worry. | | 2 | <ul style="list-style-type: none"> • Groundwater contains pesticides, so we have used too much. | | 4 | |
| 6. <u>Identify compromises/alternatives</u> Use chemical pesticides only if they have passed special testing to be sure they are safe. | | | | | | |
| 7. <u>Offer a decision</u> I think we need to continue to use chemical pesticides. | | | | | | |
| 8. <u>Name reasons for the decision</u> World hunger is such a big problem that we need to take risks to feed starving people. | | | | | | |

© Teaching Decision-Making by Janis A. Bulgren. University of Kansas Center for Research on Learning (2018).

WHAT are content area challenges and decisions?

Decisions we make for Content Area classes respond to a range of assignments, assessments, debates or other challenges. For example:

1. How can I decide if *Romeo and Juliet's* lives were decided by Fate or Chance?
2. What are pros and cons of using genetically modified foods?
3. What are the reasons for and against having term limits for Congress?

Figure 3. Decision-Making Guide: Should there be Term Limits for Congress (content class)

Decision-Making Guide

Name: _____ Date: _____ Class: _____ Topic: _____

| Term Limits for Congress | | | | | |
|---|--|---|---|---|--|
| 1. <u>Decide the issue</u> | 2. <u>Enter Option A</u> Impose terms limits | | 2. <u>Enter Option B</u> Don't impose term limits | | |
| 3. <u>Create important information</u> <ul style="list-style-type: none"> The Constitution sets term limits for Congress. Representatives are elected for terms of 2 years, Senators of 6 years. The Constitution can be amended and has 25 amendments. Presidents' terms limited to two after FDR served four terms Lobbyists: people paid to influence lawmakers to vote in ways that benefit special interests. | 4. <u>Identify reasons for option A</u> <ul style="list-style-type: none"> Special interest groups might have less power over members of Congress because they wouldn't have long working relationships with lobbyists. Constitution should be changed because times change. Congress members now spend more time on the job, something the founding fathers did not anticipate. New people needed in Washington to get fresh ideas on complex issues. Term limits would save money because less money would be spent on re-elections. | 5. <u>Set Rank</u> 3 2 3 3 | 4. <u>Identify reasons for option B</u> <ul style="list-style-type: none"> Special interest group lobbyists might have more power due to new members' inexperience and need for donations. Changing term limits would mean changing to the Constitution; founding fathers did not want term limits. Experienced members of Congress are valuable because they provide "historical memory" for complex issues. Term limits for governors and presidency have not solved the problem of money being spent on campaigns. | 5. <u>Set Rank</u> 5 1 3 4 | |
| | 6. <u>Identify compromises/alternatives</u> I don't see any compromises to this question. | | | | |
| | 7. <u>Offer a decision</u> I think we should not impose term limits for Congress. | | | | |
| | 8. <u>Name reasons for the decision</u> Issues such as lobbying and election costs are much more complicated than term limits could solve. | | | | |

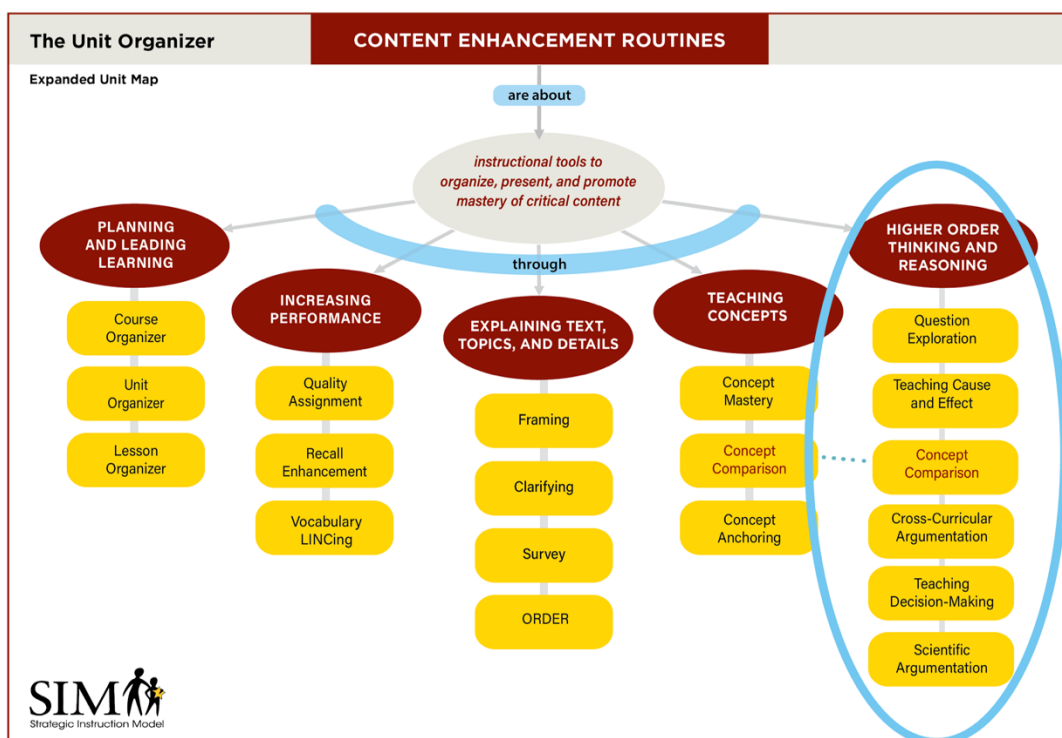
© Teaching Decision-Making by Janis A. Bulgren. University of Kansas Center for Research on Learning (2018).

© J. Bulgren 2018

WHERE do we start with Decision-Making?

First, get the **BIG PICTURE** of all Higher Order Thinking and Reasoning (HOTR) Routines and where the *Decision-Making Routine* fits with other Content Enhancement routines (see Fig. 4). The *Decision-Making Routine* is one of the routines devoted to higher order thinking and reasoning needed to engage in critical thinking and problem solving. The *Decision-Making Routine* builds on skills previously learned in the *Concept Comparison Routine* by analyzing two topics or choices in detail.

Figure 4. SIM Content Enhancement Routines with HOTR



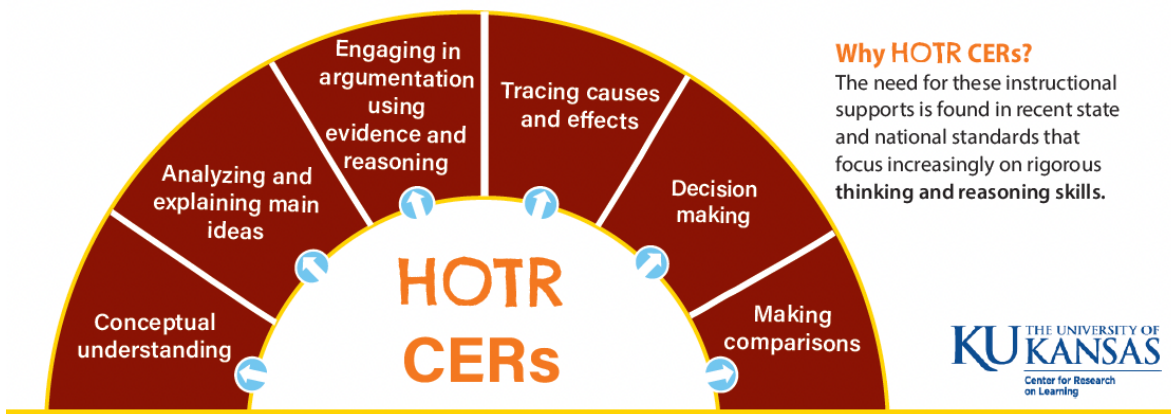
Alignment with a Sequence of Critical thinking

The *Decision-Making Routine* is part of the group of Higher Order Thinking and Reasoning routines that present a sequence of reasoning skills; these reasoning skills offer ways to streamline instruction and save time, while responding to various reasoning challenges.

First, teachers can show students how components of previously taught routines provide a foundation for using the *Decision-Making Routine*. Such instruction builds on students' prior knowledge and streamlines the instructional process. Students are already familiar with the use of visual graphics, cognitive strategic thinking steps, and the Cue-Do-Review instruction process.

Second, one HOTR routine can build on learning acquired in another (See Fig. 5). For example, a HOTR routine such as Concept Comparison lays the foundation for comparing and contrasting skills that are also foundational thinking and reasoning skills in Decision-Making. Therefore, teaching both together or in close sequence saves teaching and learning times.

Figure 5. HOTR Arc



The *Decision-Making Routine* is particularly useful because it responds to the learning needs of all students. Components of the *Decision-Making Routine* include ways to help all students learn including visual learning supports (graphics; see Fig. 6) and cognitive reasoning supports (strategic steps; shown below) as well as teacher Instructional procedures (Cue-Do-Review; shown below). They are responsive to standards, provide writing supports, have supporting research and are aligned with a sequence of critical thinking.

Visual Learning supports (graphics)

Figure 6. *Decision-Making Routine* Visual learning (graphic)

Decision-Making Guide

Name: _____ Date: _____ Class: _____ Topic: _____

| | | | | |
|--|--|---------------------|--|---------------------|
| 1. <u>D</u> ecide the issue | | | | |
| 3. <u>C</u> reate important information | 2. <u>E</u> nter Option A | | 2. <u>E</u> nter Option B | |
| | 4. <u>I</u> dentify reasons for option A | 5. <u>S</u> et Rank | 4. <u>I</u> dentify reasons for option B | 5. <u>S</u> et Rank |
| 6. <u>I</u> dentify compromises/alternatives | | | | |
| 7. <u>O</u> ffer a decision | | | | |
| 8. <u>N</u> ame reasons for the decision | | | | |

© Teaching Decision-Making by Janis A. Bulgren. University of Kansas Center for Research on Learning (2018).

Cognitive supports (strategic reasoning steps)

An associated cognitive support is an acronym to prompt recall of the strategic steps cued by the word **DECISION**, representing the first letter of each step.

The steps of the *Decision-Making Routine* include the following:

1. **D**ecide the issue,
2. **E**nter options,
3. **C**reate a list of important information,
4. **I**dentify reasons to support each option,
5. **S**et rank for each reason,
6. **I**dentify compromises or alternatives,
7. **O**ffer a decision, and
8. **N**ame reasons for the decision.

Teacher Instructional Procedures (Cue-Do-Review)

Steps of the *Decision-Making Routine* follow the **Cue-Do-Review** sequence in which teachers:

1. **CUE** students about the importance of the issue, use of the Guide, notetaking, and participation in collaborative development of the graphic organizer for Decision-Making;
2. **DO** the steps following those on the graphic above; and
3. **REVIEW** learning outcomes, the process of learning following the strategic steps, and predict where the learning or process will be used again to *generalize* learning.

Response to Standards

The *Decision-Making Routine* promotes efficient and effective teaching and learning that is responsive to rigorous learning challenges across standards and may be used across curricula as illustrated by the sample Guide from a Civics class on term limits (see Fig. 3). In addition, in Mathematics standards, students are asked to construct a decision-making model, in History standards to consider different decisions and outcomes, in science standards to compare different outcomes and in English Language Arts standards to differentiate advantages and outcomes, which are all components of the *Decision-Making Routine*.

Writing Support

Once completed, a Decision-Making Guide can serve as a guide for an essay. To do this, students use the different sections of the guide to create different paragraphs of the essay. Prompts for writing an essay are provided below with this graphic that can be shared with students (See Figure 7). Additional supports for writing an essay are found in the *Teaching Decision-Making* guidebook.

A Detailed Overview of The Teaching Decision-Making Routine

by Janis Bulgren, Ph.D. Research Professor, Emerita

Figure 7. Using the Decision-Making Guide for an essay

Decision-Making Guide

Name: _____ Date: _____ Class: _____ Topic: _____

| Term Limits for Congress | | | | | |
|--|--|-------------------------|---|--|--|
| 3. Create important information | 2. Enter Option A | | 2. Enter Option B | | |
| <ul style="list-style-type: none"> The Constitution sets term limits for Congress. Representatives are elected for terms of 2 years, Senators of 6 years. The Constitution can be amended and has 25 amendments. Presidents' terms limited to two after FDR served four terms Lobbyists: people paid to influence lawmakers to vote in ways that benefit special interests. | 4. Identify reasons for option A <ul style="list-style-type: none"> Special interest groups might have less power over members of Congress because they wouldn't have long working relationships with lobbyists. Constitution should be changed because times change. Members now spend more money on campaigns. New ideas for fresh ideas. | 5. Set Rank 3 | 4. Identify reasons for option B <ul style="list-style-type: none"> Special interest group lobbyists might have more power due to new members' inexperience and need for donations. Changing term limits would mean changing to the Constitution; founding fathers did not want to. Expensive value of political memorials. Term limits for governors and presidency have not solved the problem of money being spent on campaigns. | 5. Set Rank 5 1 3 4 | |
| | 6. Identify compromises/alternatives I don't see any compromises to this question. | | | | |
| | 7. Offer a decision I think we should not impose term limits for Congress. | | | | |
| | 8. Name reasons for the decision Issues such as lobbying and election costs are much more complicated than term limits could solve. | | | | |

© Teaching Decision-Making by Janis A. Bulgren. University of Kansas Center for Research on Learning (2018). © J. Bulgren 2018

Supporting Research for the Decision-Making Routine

Students whose teachers used the Decision-Making Routine had significantly higher overall post-test scores than pretest scores (almost twice as large as the comparison group). Data also suggested that students in 7th and 8th grade science and social studies experimental classes could transfer use of the strategy to different content areas in which the teacher had not used the routine in that classroom.

SUBJECTS & CONTENT: 200 students (LD, LA, AA, HA) in grades 7-8 in science and social studies.

ASSESSMENT OUTCOMES: Students in the experimental group significantly outperformed those in the control group in their ability to make a decision on a previously unencountered content area issue and to learn the steps of the cognitive strategy.

CORRELATIONS BETWEEN: knowledge of the decision-making cognitive steps (listed on page 7) was correlated to both analyzing a new decision-making challenge as well as quality note-taking (either on a blank guide or on blank paper), (Bulgren, J.A. 2018).

In conclusion, the *Decision-Making Routine* and associated guide and cognitive reasoning strategy with guiding steps are an addition to the set of Higher Order Thinking and Reasoning Routines that respond to increasingly challenging standards and assessments. As such, it facilitates learning and teaching using the Cue-Do-Review instructional procedures and adds to choices teachers can make to enhance learning for students.

Bibliography:

Articles or Chapters with HOTR Examples and Links to Standards:

- Bulgren, J.A. (2018). *Use, Effectiveness and Generalization of a Decision-Making Routine in Secondary Content Classrooms*. Manuscript in Preparation. The University of Kansas Center for Research on Learning.
- Bulgren, J.A., Marquis, J.G., Deshler, D.D., Lenz, B.K., & Schumaker, J.B. (2013). The use and effectiveness of a question exploration routine in secondary-level English language arts classrooms. *Learning Disabilities: Research and Practice, 28*(4), 156-169.
- Bulgren, J.A., Marquis, J.G., Lenz, B.K., Deshler, D.D., & Schumaker, J.B. (2011). The effectiveness of a question exploration routine for enhancing the content learning of students. *Journal of Educational Psychology, 103*(3), 578-593.
- Jacobs, V. A. (2008). Adolescent literacy: Putting the crisis in context. *Harvard Educational Review, 78*(1), 7–39. <https://doi.org/10.17763/haer.78.1.c577751kq7803857>;
- Common Core State Standards (CCSS) Initiative, 2010.
- Next Generation Science Standards (NGSS), 2013.
- National Curriculum Standards for Social Studies (NCSS), 2013.
- Bulgren, J.A., Lenz, B.K., Schumaker, J.B., Deshler, D.D., & Marquis, J. (2002). The use and effectiveness of a comparison routine in diverse secondary content classrooms. *Journal of Educational Psychology, 94*(2), 356-371.

Articles or Chapters with HOTR Examples:

- D. Minarik. May 2023. *Using the Decision-Making Routine for IEP and Post-Secondary Goal Development*. <https://sim.ku.edu/sim-forum>
- C. Wisniewski. April 2023. *Higher Order Thinking and Reasoning (HOTR) Routines Support Rigor*. <https://sim.ku.edu/sim-forum>
- Bulgren, J., Minarik, D., & Washburn, J. (2024). Higher order thinking and reasoning through primary source document analysis. In S. Waring (Ed.), *Teaching with primary sources for cultural understanding, civic mindedness, and democracy* (pp. 47-63). Teachers College Press.

Other Relevant Publications:

- Anderson, L. W., & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives: Complete Edition*. New York: Longman.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How People Learn: Brain, Mind, Experience, and School*. Washington DC: National Academy Press.
- *Cognition and Instruction: Twenty-five Years of Progress*. (2013). United Kingdom: Taylor & Francis.

WHERE can I find more information about HOTR routines?

- Visit the **HOTR website**: <https://sim.ku.edu/hotr-routines>
- The KUCRL HOTR Cadre meets periodically to discuss all things HOTR and periodically hosts free webinars for active SIM Professional Developers. We hope to do more events like this in the future, so be on the lookout in the Upcoming Events section of *StrateNotes* and online.