ASSESSMENT PLANNING IN SECONDARY MATH

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@rmarynow

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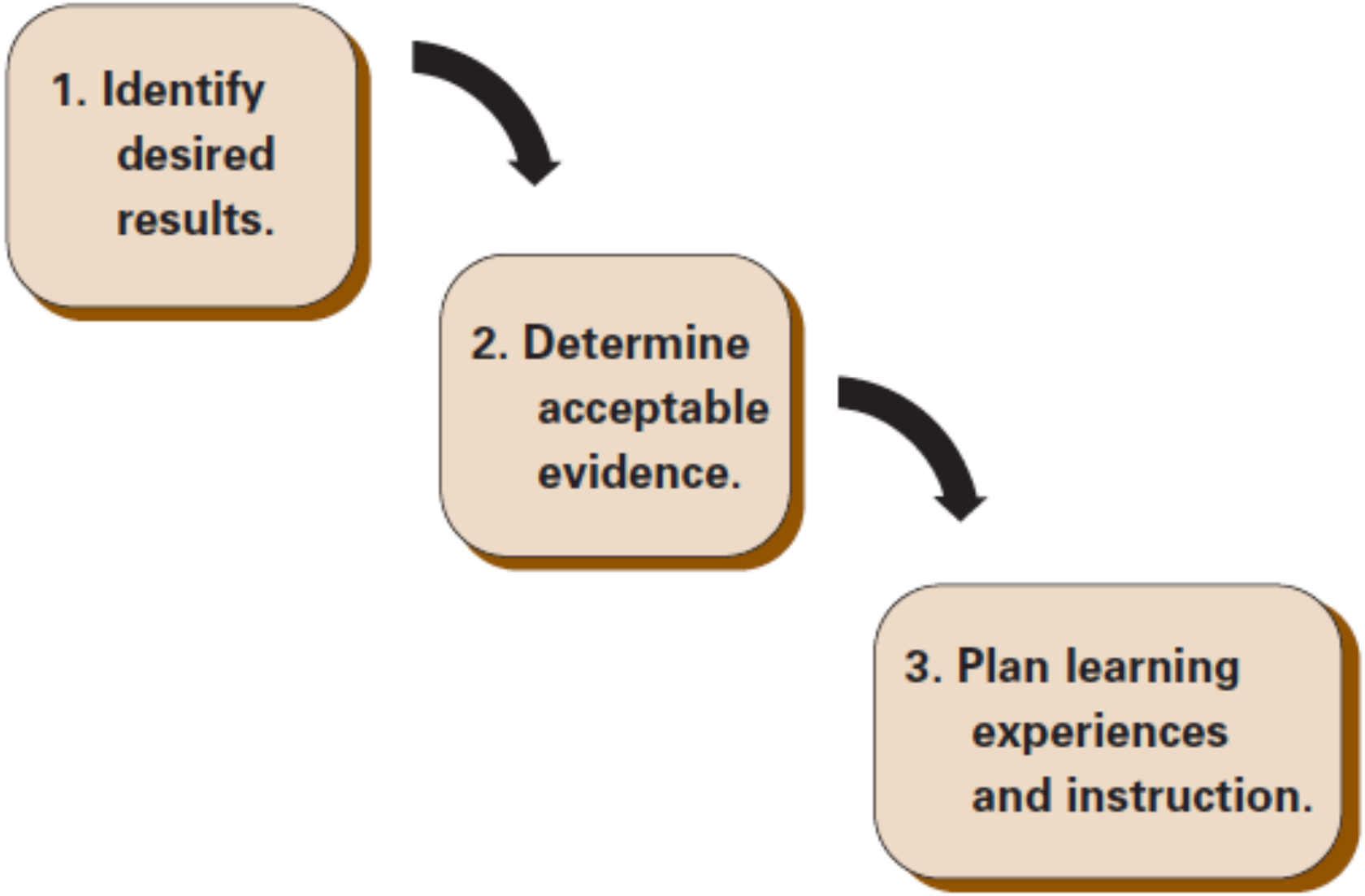
ASSESSMENT PLANNING

- Understanding by Design (UbD) by Wiggins and McTighe focuses on addressing

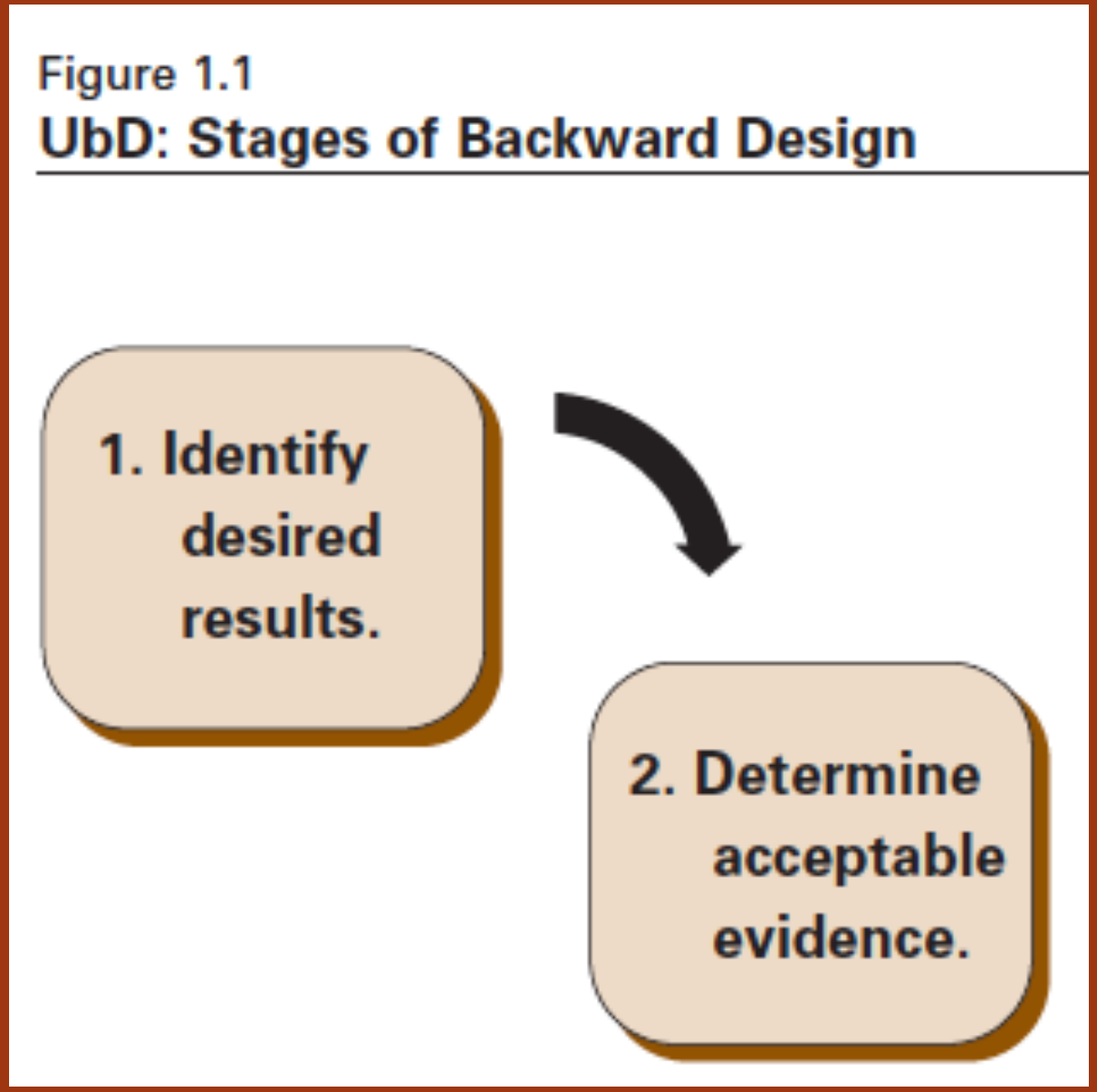
"the "twin sins" of typical instructional design in schools: activity-focused teaching and coverage-focused teaching." (2005, p. 3)

Figure 1.1

UbD: Stages of Backward Design



(Wiggins & McTighe, 2005, p. 18)



(Wiggins & McTighe, 2005, p. 18)

Two Big Questions

- What do my students need to know and be able to do?
- How am I going to know what they know and are able to do?

VALIDITY, RELIABILITY, FAIRNESS

Validity

- whether an assessment measures what was intended and the **adequacy and appropriateness** of the *interpretations and uses* of assessment results.

Reliability

- **consistency or dependability** of the results of the assessment and how free of error it is (assessment design).

Fairness

- **all** students have an equal opportunity to succeed and demonstrate their learning

UNDERSTANDING BY DESIGN…

…as a framework for assessment planning

UNDERSTANDING BY DESIGN (WIGGINS & MCTIGHE, 2005)

3 Stages in planning

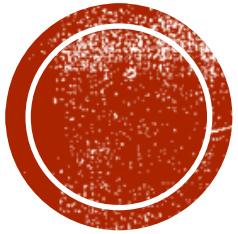
- Stage 1: Desired Results
  - Established Goals (General Learning Outcomes – Big ideas; Essential Concepts from Catalyzing Change, 2018)
  - Understandings
  - Essential Questions
  - Learning Outcomes or Standards
  - Prior Knowledge
  - Where does this lead?

UNDERSTANDING BY DESIGN CONTD

- Stage 2: Assessment Evidence
  - Pre-assessment
  - Summative Assessments
    - Assessment of Learning
  - Formative Assessment
    - Assessment for learning
    - Assessment as learning

UNDERSTANDING BY DESIGN CONTD

- Stage 3: Learning Plan
  - Learning activities
    - What learning experiences and instruction will enable students to achieve the desired results?



STAGE 1: DESIRED RESULTS

Focusing on the big ideas/enduring understandings

Stage 1 – Desired Results

Established Goals:

General Learning Outcomes – Big ideas; Enduring Understandings
Essential Concepts from Catalyzing Change, 2018

Understandings: *Students will understand that…*	**Essential Questions:**
Teacher Developed: Essential questions and Understandings are linked – what do students need to know to answer the Essential questions?	
Prior understandings… What is in previous courses? What was already in this course?	*Students will be able to do…* Standards, learning objectives, outcomes Includes knowledge, skills, attitudes
Where does this lead? What is in future courses? What is in later in this course	

STAGE 1: DESIRED RESULTS

WHAT DO MY STUDENTS NEED TO KNOW AND BE ABLE TO DO?

UbD template adapted by Richelle Marynowski, 2018

Characteristics of Essential Questions:

1. Cause genuine and relevant inquiry into the big ideas and core content of the field.
2. Provoke deep thought, sustained inquiry, and new understandings.
3. Require students to consider alternatives, weigh evidence, support their ideas, and justify their answers.
4. Stimulate vital, ongoing rethinking of big ideas, assumptions, prior lessons.
5. Spark meaningful connections with prior learning and personal experiences.
6. Naturally recur in new contexts.

ESSENTIAL QUESTIONS

Why are numbers represented differently in different situations?

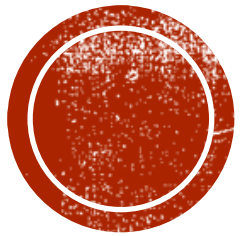
When are algebraic representations of phenomena useful and not useful?

How does what I measure influence how we measure?

What is meant by equality?

THINK ABOUT ONE OF YOUR UNITS/TOPICS – CRAFT ONE TO THREE ESSENTIAL QUESTIONS FOR THAT TOPIC

Time to work!!! And then share!!!



STAGE 2: ASSESSMENT EVIDENCE

Minute by minute, day by day, week by week, unit by unit

Stage 2 – Assessment Evidence	
Pre-Assessment How do I figure out what students already know and can do?	
Quizzes, Tests, Assignments How do I figure out what students know at a given point in time?	*Performance Tasks, Projects* How can I get them to show what they know and can do?
Other Evidence (observations, work samples, dialogues) How do I notice what students know and can do?	*Student self-assessment* How do I get students to recognize what they know and can do?

STAGE 2: COLLECTING EVIDENCE

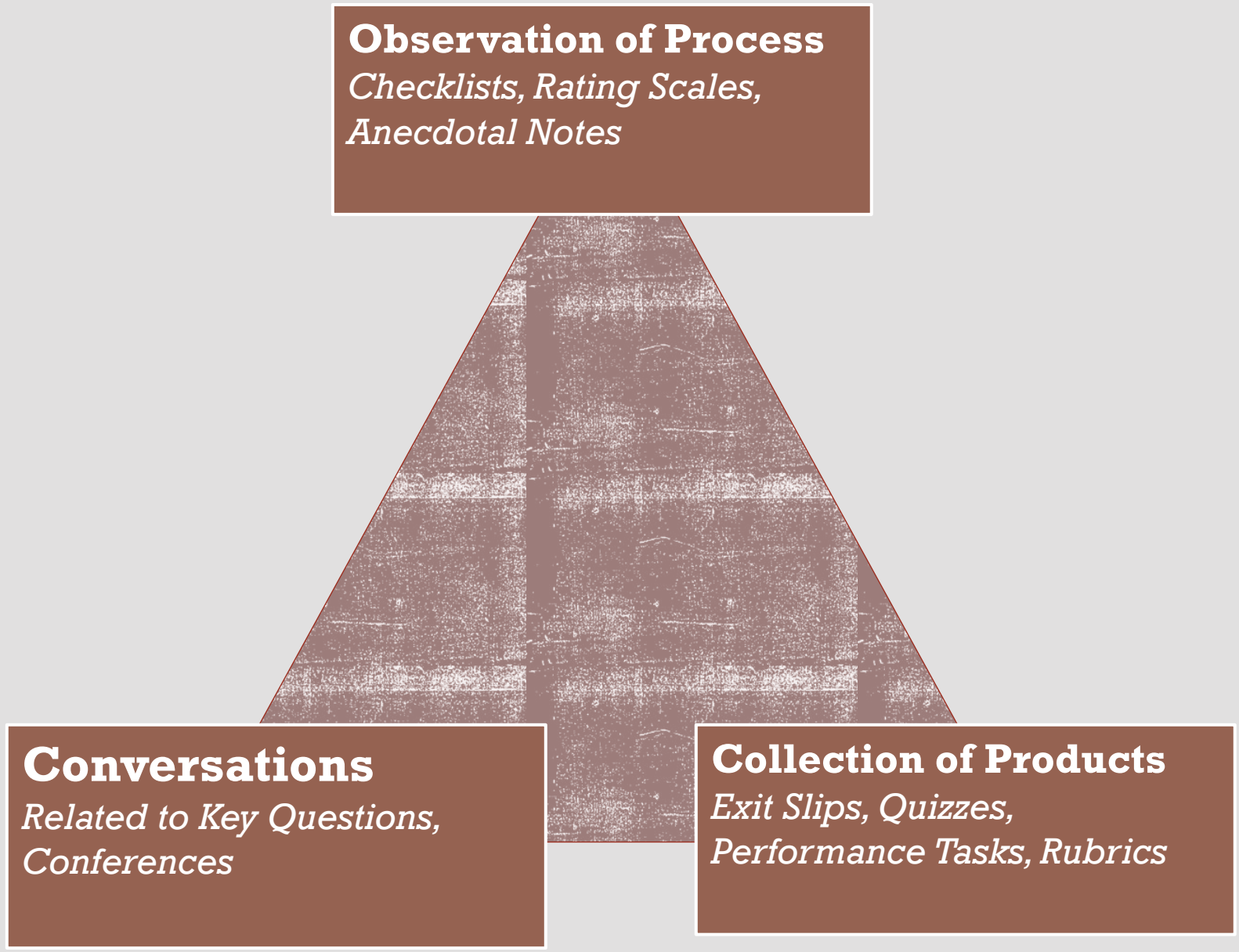
HOW AM I GOING TO KNOW WHAT STUDENTS KNOW AND ARE ABLE TO DO?

UbD template adapted by Richelle Marynowski, 2018

ASSESSMENT CONSIDERATIONS

- Alignment with outcomes/standards (verbs and nouns)
- Assessment for, as, of learning opportunities
- Triangulation of Evidence
  - "When evidence is collected from three different sources over time, trends and patterns become apparent, and the reliability and validity of our classroom assessment is increased."

(Davies, 2011, p. 46)



TRIANGULATION OF EVIDENCE

Ensure evidence shows consistency in performance – if performance is inconsistent, check assessment tool and consider needing more evidence

ASSESSMENT FOR, AS, OF LEARNING

- Assessment for learning – assessment in the service of learning, moves learning forward, minute-by-minute
- Assessment as learning – student self assessment, metacognition, reflection
- Assessment of learning – summative assessment, at the end of the learning

EMBEDDED FORMATIVE ASSESSMENT
DYLAN WILIAM (2011, P. 46)

	Where the learner is going	Where the learner is right now	How to get there
Teacher	Clarifying and sharing learning intentions and criteria for success	Engineering effective classroom discussions, activities, and tasks that elicit evidence of learning	Providing feedback that moves learning forward
Peer	Understanding and sharing learning intentions and criteria for success	Activating learners as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	Activating learners as the owners of their own learning	

Figure 2.2: The five key strategies of formative assessment. Adapted from Leahy, Lyon, Thompson, & Wiliam, 2005.

BALANCED ASSESSMENT PLAN

- Includes multiple opportunities for students to show what they know and can do in a variety of ways with a variety of audiences

BRAINSTORM ASSESSMENT STRATEGIES FOR STAGE 2

Time to work!! And then share!!

STILL STAGE 2: ALIGNING AND DESCRIBING ASSESSMENT STRATEGIES

What exactly are students going to show and how?

Learning Outcomes	Assessments				
	Name				
	Type (Formative/Summative)				
	Weighting				

ARTICULATING ALIGNMENT OF ASSESSMENTS WITH OUTCOMES

WHAT ASSESSMENTS ARE ADDRESSING WHAT OUTCOME?

Learning Outcomes	Assessments						
	Name	Question of the Day	KWL sheet/ Exit Slip	Checklist of topics on Quiz/Test	Performance Task Ferris Wheel inspector	Partnered Quiz	Unit Test
	Type (Formative/ Summative)	Formative	Formative	Formative	Summative	Formative Summative	Summative
	Weighting	None	None	None	20%	20%	60%
Demonstrate an understanding of angles in standard position, expressed in degrees and radians.		Π	Π	Π		Π	Π
Develop and apply the equation of the unit circle.		Π		Π		Π	Π
Solve problems, using the six trigonometric ratios for angles expressed in radians and degrees.		Π	Π	Π		Π	Π

Assessment Tool Overview				
Assessment Tool Name	**Brief Description**	Assessment FOR Learning	Assessment AS Learning	Assessment OF Learning

ARTICULATING ALIGNMENT

WHAT STUDENTS WILL BE DOING

WHAT ARE STUDENTS SHOWING?

Assessment Tool Overview

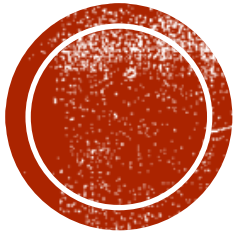
Assessment Tool Name	Brief Description	Assessment FOR Learning	Assessment AS Learning	Assessment OF Learning
Question of the Day	**Description:** Every day, for 10 minutes, a question is chosen out of the homework from the day before is posted in front, and students work to solve the problem. Additionally, a question from today's topic can be included in the Daily Question that connects the two lessons together. During this time, I can walk around observing or conversing with students to better understand of their knowledge and abilities. After 10 minutes, students can share the answers and I can write down the solution to make sure everyone has it. I can determine whether or not students are having trouble with a certain type of question, such that he can devout a bit of time revisiting that topic in the future, and prepare/prime students for the upcoming lesson.	∏		
KWL sheet	**Description:** Students will complete a worksheet writing down everything they know about the topic that we are about to cover. It will be used twice this unit, once in the beginning and once in the middle. It is used less frequently due to its purpose of providing direction to teaching rather than assessing understandings.	∏	∏	
Checklist of the topics on Quiz/Test	**Description:** This assessment will be used before the quiz and the unit test. It is simply a list of topics that will be covered and the calculations, theorems, and skills that students should be able to do. Students can use this checklist as a study guide to map out areas of weakness, and then address the weakness in the review session offered before the quiz and test.		∏	

START MAPPING OUTCOMES TO ASSESSMENT TOOL AND DESCRIBING THEM

Time to work!! And then share!!

KEY CONCEPTS

- Alignment of outcomes, assessments, learning plan helps enhance reliability and validity
- Keep focus on big ideas or essential understandings
- Integrate formative assessment opportunities throughout
- Balance and triangulate assessment so that all outcomes are assessed in multiple ways



THANK-YOU!

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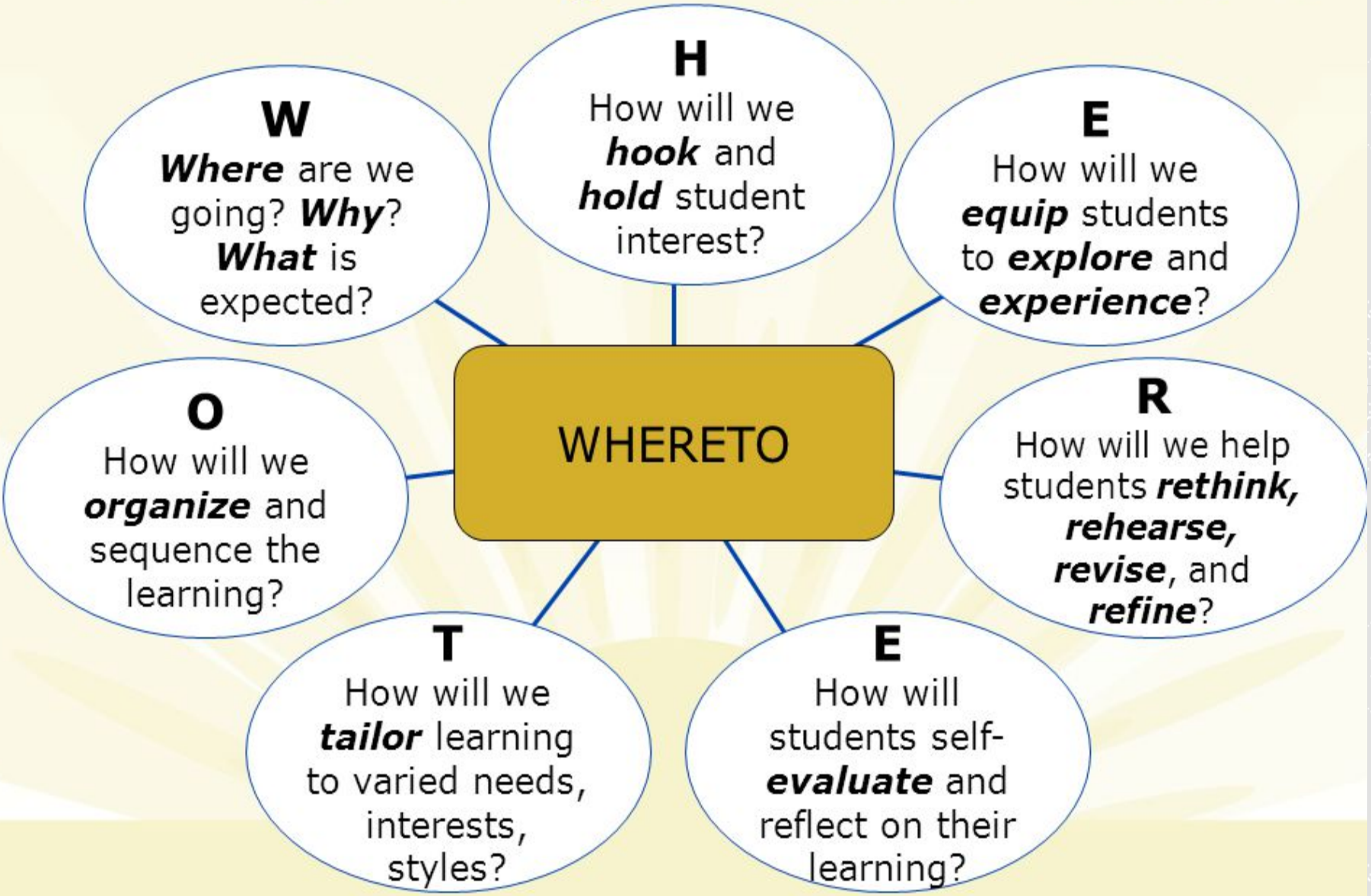
WHERETO: Making Instructional Decisions



STAGE 3: LEARNING PLAN

What learning experiences and instruction will enable students to achieve the desired results?

LEARNING PLAN

- Focused on achievement of outcomes and exploring the essential questions
- Keep the big ideas in mind
- What is essential and what is nice to have?
- Purposeful engagement
- Sequencing and timing
- Formative assessment along the way!