UNIT ~~Planner~~ Intentional Thinking as a Tool for Guiding Curriculum and/or Facilitating Professional Learning for Iowa Core MATH

Teacher:	**Subject: Mathematics** **Course Title:**	**Grade:**
➢ Is this a group or individual draft, a consensus proposal, or the final district curriculum?		

UNIT:	**Time Frame:**
➢ Can the unit title convey in some detail the focus of the unit of study beyond naming a topic? Does it give the students an idea of what they will be asked to get good at?	➢ Have I given the time necessary for students to become confident and competent in the learning target set the unit addresses? ➢ Have I placed this unit at this time of year purposefully to coordinate with other subjects and/or projects students will be working on? ➢ Does it fit into the progression of learning identified by the standards or other guiding documents?

CURRICULUM / LEARNING TARGETS Use the math flipbooks for help

☐ Targets a set of grade-level mathematics standard(s) to the full depth of the standards for teaching and learning.	☐ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed.	☐ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the math core.
• Does the teacher/developer articulate alignment to a reasonable set of standards? Do they make sense as a group? Too many? Too few? • Do the standards selected relate directly to the essential question / big understanding and do they direct the kinds of activities and assessments that will be used in the unit of study? • Are only a few math standards the focus of instruction for a unit? • Will the selected standards be directly assessed? • Will the selected standards be explicitly taught? • Do the assignments, tasks and activities suggest a set of standards that should be targeted for instruction? • Do the assignments, tasks, and activities make sense given the standards listed? • Overall, is the unit instructionally tight? • Are targeted standards displayed in the unit so obviously that it supports teacher reflection and in-the-moment decisions? ***Note:*** *The emphasis is teaching and assessing to the thinking intent of the math core.* ***Note:*** *At HS this means that the units for the school year do not distract students with prerequisite or additional standards. The materials over the year should focus on the high school standards. The + and Iowa specific standards are explicitly identified and coherently support the mathematics which all students should study in order to be CCR.*	• Are Standards for Mathematical Practice identified? • Do the assignments and activities/tasks (aligned to the practices) make sense for the grade or age? • Does the identified math practice(s) stay central to the work of the unit? • Are the mathematical practices tied closely to the content of the lesson or unit? ***Note****: In K-2 the unit should reflect child development in the building of student knowledge through questioning and activities. The key is to truly take the unit's opportunities to select activities that use the math practices.* ***Note:*** *In HS the units over the year attend to the full intent of the modeling standard. HS materials require students to engage in math at a level of sophistication appropriate to high school.*	• Do the assignments and activities/tasks provide opportunities for students to practice mathematical procedures AND deepen the emphasized concepts with a balance appropriate for the content and for the grade level? ***Note****: Balance, balance, balance.*

Instructional Shifts Considered: (use math flipbooks for help)

☐ **Focus:** Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades.	☐ **Coherence:** The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within and across clusters, domains and learning progressions.
• Does the content of the lesson/unit belong to the Standards' emphases (major work) for the grade? • Are aspects of the unit that relate to supporting work of the grade closely tied to the grade-level focus? • Does the unit logically fit into the full year sequence of units for the grade? ***Note:*** *The major work of the grades is spelled out by Student Achievement Partners in K-8 and at HS by PARCC. The major work of the grade should encompass 75-80% of the 179 instructional days.*	• Does the unit provide teachers with connections to related expectations in earlier and later grades? • Does the unit provide materials that relate grade-level concepts explicitly to prior knowledge from earlier grades? • If learning objectives are listed are they visibly shaped by Iowa Core cluster headings? • If there is content from prior or future grades, is that content clearly identified and related to grade-level work? • Does it address the "big picture" as specified in the relevant cluster heading? • Does it help students make connections among standards within a cluster, clusters within a domain, or domains within a grade? ***Note:*** *Publishers have had a difficult time staying loyal to coherence. Be extremely loyal to coherence when improving units.* ***Note:*** *At HS each unit adds to the coherence of the total course units of study.*

Code	**Iowa Core Content Standard (Teach and Assess)**	**Standards of Mathematical Practice**
		Check all that will be explicitly addressed / taught within this unit: ☐ Making sense of problems / persevere ☐ Reason abstractly ☐ Construct viable arguments / critique others ☐ Model ☐ Use appropriate tools ☐ Attend to precision

		☐ Look for / make use of structure ☐ Look for / express regularity in repeated reasoning

COHERENCE: Other standards and topics that connect / build on or from this unit

ESSENTIAL QUESTION / BIG UNDERSTANDING (Understandings frame the big ideas central to a discipline. They represent the important ideas that we want students to be able to use long after they have forgotten the details. In other words, enduring or big understandings have lasting value beyond the classroom).

- Have I identified what larger understandings this unit will work toward developing? Some refer to these as 'big ideas' or 'enduring understandings', no matter what term you use, they are developed so as to guide the unit of study to get the desired results. Once these are developed, it might be necessary to go back and make adjustments to the benchmarks/strands-grade level expectations that were selected for the unit earlier.
- Has the essential question fostered content inquiry/understanding/thinking, connections to 21st Century skills and relevance to the learner?

Potential Math Misconceptions (use math flipbooks for help)

Iowa's Core 21st Century Skills: Which standards/skills will be incorporated in the instructional design?

Employability Skills	Financial Literacy	Health Literacy	Civic Literacy	Technology Literacy	Universal Constructs (how does the unit support the constructs?)
• Communication • Flexibility • Leadership and responsibility • Self-direction • Productivity and accountability	• Financial planning • Financial instruments • Debt • Risk management options • Financial security • Ethical behavior	• Functional health skills • Health goals • Wellness goals • Health risks • Active lifestyles	• Rights and responsibilities • Constitutional government • Branches of government • Powers of government • Political action • Law and public policy • Political systems • US world affairs	• Creativity and innovation • Communication and collaboration • Research and Information Fluency • Critical thinking, problem solving, & decision making • Digital citizenship • Technology operations & concepts	**Critical thinking** **Complex communication** **Creativity** **Collaboration** **Flexibility and adaptability**

Engaging the Students: How will students be engaged in the learning during this unit?

- Have I thought about current student background knowledge, misconceptions that have occurred in the past, and how will this unit will reduce misconceptions and build a strong knowledge base?

Hint: Rough out a story-board format of lessons in planning the unit of study/inquiry. Answer: What is the order of skills/concepts to be taught? OR What is your line of inquiry over the course of the unit, i.e., your sequence of questions that engage students in the content?

ACADEMIC and MATH CONTENT VOCABULARY: ☐ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g. pictures, symbols, expressions, equations, graphics, models) in the discipline.	
• Is there evidence of conscious, intentional thought about the vocabulary that should be focused on when studying a particular text and math cluster? • Is the vocabulary selected from the text set under study consequential to the meaning of the text and cluster? • Are the vocabulary linked to the cluster NOT drills? • Is there a focus on the critical few words? • Are pictures and models used to support learners? • Are the words being developed with rich mathematical tasks? **Note to K-2**: Academic vocabulary is important in K-2 and there may be instances where lessons/units focus on vocabulary more overtly than others. **Note**: There can be a variety of ways to focus on vocabulary – some can be teacher directed and others can be student directed. This is about the meaning of the words, with special emphasis on precise math vocabulary.	
Vocabulary Words: (use math flipbooks for help)	**How Vocabulary will be Taught:**
Content Words (Tier 3):	
Academic Words (Tier 2):	