

Charlotte Danielson's FRAMEWORK FOR TEACHING

DOMAIN 1: Planning and Preparation

- 1a Demonstrating Knowledge of Content and Pedagogy**
 - Content knowledge • Prerequisite relationships • Content pedagogy
- 1b Demonstrating Knowledge of Students**
 - Child development • Learning process • Special needs
 - Student skills, knowledge, and proficiency
 - Interests and cultural heritage
- 1c Setting Instructional Outcomes**
 - Value, sequence, and alignment • Clarity • Balance
 - Suitability for diverse learners
- 1d Demonstrating Knowledge of Resources**
 - For classroom • To extend content knowledge • For students
- 1e Designing Coherent Instruction**
 - Learning activities • Instructional materials and resources
 - Instructional groups • Lesson and unit structure
- 1f Designing Student Assessments**
 - Congruence with outcomes • Criteria and standards
 - Formative assessments • Use for planning

DOMAIN 2: The Classroom Environment

- 2a Creating an Environment of Respect and Rapport**
 - Teacher interaction with students • Student interaction with students
- 2b Establishing a Culture for Learning**
 - Importance of content • Expectations for learning and achievement
 - Student pride in work
- 2c Managing Classroom Procedures**
 - Instructional groups • Transitions
 - Materials and supplies • Non-instructional duties
 - Supervision of volunteers and paraprofessionals
- 2d Managing Student Behavior**
 - Expectations • Monitoring behavior • Response to misbehavior
- 2e Organizing Physical Space**
 - Safety and accessibility • Arrangement of furniture and resources

DOMAIN 4: Professional Responsibilities

- 4a Reflecting on Teaching**
 - Accuracy • Use in future teaching
- 4b Maintaining Accurate Records**
 - Student completion of assignments
 - Student progress in learning • Non-instructional records
- 4c Communicating with Families**
 - About instructional program • About individual students
 - Engagement of families in instructional program
- 4d Participating in a Professional Community**
 - Relationships with colleagues • Participation in school projects
 - Involvement in culture of professional inquiry • Service to school
- 4e Growing and Developing Professionally**
 - Enhancement of content knowledge and pedagogical skill
 - Receptivity to feedback from colleagues • Service to the profession
- 4f Showing Professionalism**
 - Integrity/ethical conduct • Service to students • Advocacy
 - Decision-making • Compliance with school/district regulations

DOMAIN 3: Instruction

- 3a Communicating With Students**
 - Expectations for learning • Directions and procedures
 - Explanations of content • Use of oral and written language
- 3b Using Questioning and Discussion Techniques**
 - Quality of questions • Discussion techniques • Student participation
- 3c Engaging Students in Learning**
 - Activities and assignments • Student groups
 - Instructional materials and resources • Structure and pacing
- 3d Using Assessment in Instruction**
 - Assessment criteria • Monitoring of student learning
 - Feedback to students • Student self-assessment and monitoring
- 3e Demonstrating Flexibility and Responsiveness**
 - Lesson adjustment • Response to students • Persistence

Teacher Actions of Effective Teaching Practices

Establish mathematics goals to focus learning

- Establishing clear goals that articulate the mathematics that students are learning as a result of instruction in a lesson, over a series of lessons, or throughout a unit.
- Identifying how the goals fit within a mathematics learning progression.
- Discussing and referring to the mathematical purpose and goal of a lesson during instruction to ensure that students understand how the current work contributes to their learning.
- Using the mathematics goals to guide lesson planning and reflection and to make in-the-moment decisions during instruction.

Implement tasks that promote reasoning and problem solving

- Motivating students' learning of mathematics through opportunities for exploring and solving problems that build on and extend their current mathematical understanding.
- Selecting tasks that provide multiple entry points through the use of varied tools and representations.
- Posing tasks on a regular basis that require a high level of cognitive demand.
- Supporting students in exploring tasks without taking over student thinking.
- Encouraging students to use varied approaches and strategies to make sense of and solve tasks.

Use and connect mathematical representations

- Selecting tasks that allow students to decide which representations to use in making sense of the problems.
- Allocating substantial instructional time for students to use, discuss, and make connections among representations.
- Introducing forms of representations that can be useful to students.
- Asking students to make math drawings or use other visual supports to explain and justify their reasoning.
- Focusing students' attention on the structure or essential features of mathematical ideas that appear, regardless of the representation.
- Designing ways to elicit and assess students' abilities to use representations meaningfully to solve problems.

Facilitate meaningful mathematical discourse

- Engaging students in purposeful sharing of mathematical ideas, reasoning, and approaches, using varied representations.
- Selecting and sequencing student approaches and solution strategies for whole-class analysis and discussion.
- Facilitating discourse among students by positioning them as authors of ideas, who explain and defend their approaches.

- Ensuring progress toward mathematical goals by making explicit connections to student approaches and reasoning.

Pose purposeful questions

- Advancing student understanding by asking questions that build on, but do not take over or funnel, student thinking.
- Making certain to ask questions that go beyond gathering information to probing thinking and requiring explanation and justification.
- Asking intentional questions that make the mathematics more visible and accessible for student examination and discussion.
- Allowing sufficient wait time so that more students can formulate and offer responses.

Build procedural fluency from conceptual understanding

- Providing students with opportunities to use their own reasoning strategies and methods for solving problems.
- Asking students to discuss and explain why the procedures that they are using work to solve particular problems.
- Connecting student-generated strategies and methods to more efficient procedures as appropriate.
- Using visual models to support students' understanding of general methods.
- Providing students with opportunities for distributed practice of procedures.

Support productive struggle in learning mathematics

- Anticipating what students might struggle with during a lesson and being prepared to support them productively through the struggle.
- Giving students time to struggle with tasks, and asking questions that scaffold students' thinking without stepping in to do the work for them.
- Helping students realize that confusion and errors are a natural part of learning, by facilitating discussions on mistakes, misconceptions, and struggles.
- Praising students for their efforts in making sense of mathematical ideas and perseverance in reasoning through problems.

Elicit and use evidence of student thinking

- Identifying what counts as evidence of student progress toward mathematics learning goals.
- Eliciting and gathering evidence of student understanding at strategic points during instruction.
- Interpreting student thinking to assess mathematical understanding, reasoning, and methods.
- Making in-the-moment decisions on how to respond to students with questions and prompts that probe, scaffold, and extend.
- Reflecting on evidence of student learning to inform the planning of next instructional steps.

Elementary Mathematics Classroom Look For Tool

Domain 3: Instruction

3a Communicating with Students <ul style="list-style-type: none"><input type="checkbox"/> Used varied representations⁶<input type="checkbox"/> Communicated mathematical purpose¹<input type="checkbox"/> Made explicit connections⁴<input type="checkbox"/> Used accurate mathematics vocabulary	Comment:
3b Using Questioning and Discussion Techniques <ul style="list-style-type: none"><input type="checkbox"/> Asked questions that build understanding⁵<input type="checkbox"/> Asked students to use representations to explain their thinking³<input type="checkbox"/> Asked students to explain why their procedures worked⁶<input type="checkbox"/> Engaged students sharing of mathematical reasoning⁴<input type="checkbox"/> Selected and sequenced student strategies⁴<input type="checkbox"/> Allowed for sufficient wait time⁵	Comment:
3c Engaging Students in Learning <ul style="list-style-type: none"><input type="checkbox"/> Used rich tasks with multiple entry points, varied tools, representations²<input type="checkbox"/> Encouraged students to use varied strategies²<input type="checkbox"/> Provided students with opportunities to use their own reasoning⁶<input type="checkbox"/> Provided opportunities for practice of procedures⁶	Comment:
3d Using Assessment in Instruction <ul style="list-style-type: none"><input type="checkbox"/> Gathered evidence of student understanding during instruction⁸<input type="checkbox"/> Interpreted student thinking to assess mathematical understanding, reasoning, and methods⁸<input type="checkbox"/> Made in-the-moment decisions on how to respond to students with questions that probe, scaffold, and extend⁸	Comment:
3e Demonstrating Flexibility and Responsiveness <ul style="list-style-type: none"><input type="checkbox"/> Adjusted pacing and structure of lesson as needed<input type="checkbox"/> Adjusted representations, tools, and/or tasks during instruction<input type="checkbox"/> Provided support for students working with below grade level mathematics	Comment:

Pre-Observation Conference Questions Elementary Mathematics

Planning and Preparation

- What content standard(s) will you focus on during this lesson?
- What are your learning outcomes for this lesson? Are you developing conceptual understanding, procedural fluency, or application of mathematics?
- What mathematics do you want the students to be able to do by the end of the lesson? How will you know if they can do it?
- How does this lesson fit into the mathematics scope and sequence?
- What quality math tasks have you selected? Why?
- What questions do you plan to ask?
- What Standards for Mathematical Practice (student behaviors) will you develop?
- What teacher practices will you leverage to engage students in those behaviors?
- What routine will you use?
- How are you structuring your mathematics class for this lesson?
- How will you differentiate instruction between small group rotations?

Implementation

- How will you facilitate student and group thinking?
- What strategic questions do you plan to ask during the lesson?
- How will you avoid leading students to the answer?
- What misconceptions might students have about the mathematics?

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MATHEMATICS • Exemplary Elementary Program Document

Domain 1: Planning and Preparation

1a Demonstrating Knowledge of Content and Pedagogy

- Use Maryland College and Career Ready Standards to plan instruction¹
- Allocate substantial instructional time for students to use, discuss, and make connections among representations³
- Balance instructional focus on conceptual understanding, procedural understanding and application of mathematics through all levels of Depth of Knowledge
- Use Canvas to plan standards based instruction and assessment

1b Demonstrating Knowledge of Students

- Incorporate students' life experiences, strengths, and academic assets into planning
- Anticipate what students might struggle with during a lesson⁷
- Prepare to support students productively⁷
- Leverage Universal Design for Learning

1c Setting Instructional Outcomes

- Connect mathematics learning through content progressions¹
- Set instructional outcomes that are challenging and rigorous
- Apply mathematics to interdisciplinary content

1d Demonstrating Knowledge of Resources

- Select tasks with multiple entry points through varied tools and representations²
- Use a variety of resources for concepts, procedures, and application
- Review tasks and problems prior to instruction

1e Designing Coherent Instruction

- Form instructional groups that are heterogeneous and flexible
- Allot 75 minutes per day for mathematics instruction
- Plan for number routines, content specific instruction, and closure daily
- Design interventions that align to students' needs and essential mathematics content

1f Designing Student Assessments

- Select tasks that make use of varied approaches, representations, and explanations or justifications^{2/3}
- Use varied assessment formats including paper/pencil, performance-based, interviews, observations, and learner behaviors
- Identify what is evidence of student understanding⁸
- Balance assessment of concepts, procedures, and application
- Use formative assessment to inform instruction

Domain 4: Professional Responsibilities

4a Reflecting on Teaching

- Reflect on evidence of student learning to inform planning⁸
- Use feedback from colleagues, MST, Mathematics Coach, and administrators for targeting instructional practices or strategies

4b Maintaining Accurate Records

- Use a standardized system to house student data folders
- Review student data including MAP, PARCC, KRA, and teacher-selected assessments
- Update Mathematics Learning Behavior checklist or Parent Update Sheets quarterly
- Establish and monitor student and class goals

4c Communicating with Families

- Use tools, such as Parent Update Sheets, that share student progress and academic learning
- Use tools, such as SMART pages and Computational Fluency Brochures, to communicate mathematics content
- Coach students to communicate learning with their family
- Participate in school events including Math Nights

4d Participating in the Professional Community

- Collaborate with colleagues to design daily and long-range plans
- Participate in data discussions to make instructional decisions
- Engage in mathematics professional learning at the school, district, state, and/or national level

4e Growing and Developing Professionally

- Participate in professional organizations
- Apply professional learning to mathematics instruction
- Commit to ongoing learning and growth

4f Showing Professionalism

- Participate in learning communities
- Advocate for equitable access to high-quality mathematics for all students
- Assume mathematics leadership roles

Domain 2: Classroom Environment

2a Creating an Environment of Respect and Rapport

- Build classroom community through whole and small group instruction
- Provide opportunities for student collaboration such as partner talk, small group inquiry, and/or mathematics discussion groups
- Build rapport and understanding of each student as an individual

2b Establishing a Culture for Learning

- Support students in exploring tasks without taking over student thinking²
- Give students time for productive struggle⁷
- Help students realize that confusion and errors are a natural part of learning⁷
- Praise students for their efforts and perseverance rather than the right answer⁷

2c Managing Classroom Procedures

- Establish routines and procedures for mathematics
- Establish opening number routines
- Establish a structure for small group instruction
- Establish procedures for closure
- Develop expectations with students for cooperative group instruction
- Promote effective and efficient transitions that build student independence

2d Managing Student Behavior

- Establish expectations for the classroom community
- Create opportunities for students to self-evaluate their participation and interaction within small groups and the classroom community

2e Organizing Physical Space

- Organize the classroom space for collaborative and independent learning
- Ensure students have familiarity with and access to manipulatives, tools, and other mathematics instructional resources
- Provide activities and space for intentional mathematics activities including games, puzzles, and problem solving tasks for independent time and early finishers

Domain 3: Instruction

3a Communicating with Students

- Use varied representations to support understanding⁶
- Communicate mathematical purpose or goal of the lesson¹
- Make explicit connections to student approaches and reasoning⁴
- Use accurate mathematics vocabulary

3b Using Questioning and Discussion Techniques

- Ask questions that build understanding but do not take over or funnel student thinking⁵
- Ask students to make representations to explain and justify their thinking³
- Ask students to discuss and explain why their procedures worked⁶
- Engage students in purposeful sharing of mathematical ideas, reasoning, and approaches⁴
- Select and sequence student strategies for whole-class analysis⁴
- Facilitate discourse among students by positioning them as the authors of ideas⁴
- Allow sufficient wait time⁵

3c Engaging Students in Learning

- Use tasks with multiple entry points through varied tools and representations²
- Pose tasks that require high cognitive demand²
- Encourage students to use varied strategies to make sense of and solve tasks²
- Provide students with opportunities to use their own reasoning and methods for solving problems⁶
- Provide opportunities for practice of procedures⁶
- Incorporate varied instructional materials including technology

3d Using Assessment in Instruction

- Elicit and gather evidence of student understanding during instruction⁸
- Interpret student thinking to assess mathematical understanding, reasoning, and methods⁸
- Make in-the-moment decisions on how to respond to students with questions that probe, scaffold, and extend⁸
- Reflect on evidence of student learning to inform the planning of next instructional steps⁸

3e Demonstrating Flexibility and Responsiveness

- Adjust pacing and structure of lesson as needed
- Adjust representations, tools, and/or tasks during instruction
- Provide support for students working with below grade level mathematics
- Implement accommodations for IEPs, 504, and/or ELL plans
- Accelerate students when performance shows readiness