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 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

**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

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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.
### Domain 3: Instruction

#### 3a Communicating with Students
- Used varied representations
- Communicated mathematical purpose
- Made explicit connections
- Used accurate mathematics vocabulary

#### 3b Using Questioning and Discussion Techniques
- Asked questions that build understanding
- Asked students to use representations to explain their thinking
- Asked students to explain why their procedures worked
- Engaged students sharing of mathematical reasoning
- Selected and sequenced student strategies
- Allowed for sufficient wait time

#### 3c Engaging Students in Learning
- Used rich tasks with multiple entry points, varied tools, representations
- Encouraged students to use varied strategies
- Provided students with opportunities to use their own reasoning
- Provided opportunities for practice of procedures

#### 3d Using Assessment in Instruction
- Gathered evidence of student understanding during instruction
- Interpreted student thinking to assess mathematical understanding, reasoning, and methods
- Made in-the-moment decisions on how to respond to students with questions that probe, scaffold, and extend

#### 3e Demonstrating Flexibility and Responsiveness
- Adjusted pacing and structure of lesson as needed
- Adjusted representations, tools, and/or tasks during instruction
- Provided support for students working with below grade level mathematics

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Elementary Mathematics Office • Howard County Public School System • 10910 Clarksville Pike Ellicott City, MD 21042
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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Implementation
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• 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?
Domain 1: Planning and Preparation

1a Demonstrating Knowledge of Content and Pedagogy
- Use Maryland College and Career Ready Standards to plan instruction\(^1\)
- Allocate substantial instructional time for students to use, discuss, and make connections among representations\(^3\)
- 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 lesson\(^7\)
- Prepare to support students productively\(^7\)
- Leverage Universal Design for Learning

1c Setting Instructional Outcomes
- Connect mathematics learning through content progressions\(^1\)
- 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 representations\(^2\)
- 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 understanding\(^8\)
- 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 planning\(^8\)
- 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

Superscripts indicate evidence of Effective Teaching Practices from Principles to Actions (NCTM, 2014)

Components of the Exemplary Elementary Mathematics Program are further detailed in grade level Canvas courses.
### 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 thinking
- Give students time for productive struggle
- Help students realize that confusion and errors are a natural part of learning
- Praise students for their efforts and perseverance rather than the right answer

**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 understanding
- Communicate mathematical purpose or goal of the lesson
- Make explicit connections to student approaches and reasoning
- Use accurate mathematics vocabulary

**3b Using Questioning and Discussion Techniques**
- Ask questions that build understanding but do not take over or funnel student thinking
- Ask students to make representations to explain and justify their thinking
- Ask students to discuss and explain why their procedures worked
- Engage students in purposeful sharing of mathematical ideas, reasoning, and approaches
- Select and sequence student strategies for whole-class analysis
- Facilitate discourse among students by positioning them as the authors of ideas
- Allow sufficient wait time

**3c Engaging Students in Learning**
- Use tasks with multiple entry points through varied tools and representations
- Pose tasks that require high cognitive demand
- Encourage students to use varied strategies to make sense of and solve tasks
- Provide students with opportunities to use their own reasoning and methods for solving problems
- Provide opportunities for practice of procedures
- Incorporate varied instructional materials including technology

**3d Using Assessment in Instruction**
- Elicit and gather evidence of student understanding during instruction
- Interpret student thinking to assess mathematical understanding, reasoning, and methods
- Make in-the-moment decisions on how to respond to students with questions that probe, scaffold, and extend
- Reflect on evidence of student learning to inform the planning of next instructional steps

**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

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