

**GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
GRADUATE SCHOOL OF EDUCATION
Elementary Education Program**

EDCI 552.A02 – Mathematics Methods for the Elementary Classroom

3 Credits, Summer A01 2018

MTWTF: 12:45 pm - 3:25 pm

(Course taught in conjunction with EDCI 553- Science Methods)

PDS-Centreville Elementary School

Faculty

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This course is only open to students in the Elementary Education program.

COURSE DESCRIPTION

Prerequisites/Corequisites

Admission to the elementary education licensure program.

University Catalog Course Description

Introduces methods for teaching all children topics in arithmetic, geometry, algebra, probability, and statistics in elementary grades. Focuses on using manipulatives and technologies to explore mathematics and solve problems.

Course Overview

In this course we will begin an inquiry into mathematics teaching and learning that will guide you in your first teaching job and give you the tools that will enable you to continue to inquire and learn as part of your work as a teacher. Class sessions will be interactive and will include a variety of hands-on experiences with concrete and virtual manipulatives appropriate for elementary school mathematics. We will explore the teaching of mathematics, investigating both *what* to teach and *how* to teach it. We will explore what it means to do mathematics and what it means to understand mathematics through individual, small group, and large group mathematical problem solving. We will investigate ways to represent understandings of mathematical concepts, communicate reasoning about mathematical ideas, and construct mathematical arguments. We will investigate and read about ways children might represent mathematical concepts, looking at ways to help children build

connections and see relationships among mathematical ideas. We will explore characteristics of a classroom environment conducive to mathematical learning by reading and discussing the importance of mathematical tasks, mathematical tools, the roles of teachers and students, and the assessment of mathematical understanding.

Course Delivery Method

This course will be delivered using a lecture format.

This course includes multiple instructional strategies and formats including face to face and asynchronous online meetings. Individual session formats vary and may include lecture, small group/large group discussion, hands-on, interactive work, student presentations, and cooperative learning. Practical applications of theory are explored in group activities.

Learner Outcomes

This course is designed to enable students to do the following:

- A. Know what constitute the essential topics in mathematics of the modern early and intermediate grades school program.
- B. Identify and use selected manipulatives and technology such as linking cubes, attribute blocks, geoboards, base-10 blocks, fraction circles, tangrams, calculators, and computers to teach appropriate mathematics content topics in the early and middle grades.
- C. Identify and use various instructional strategies and techniques (cooperative and peer group learning, activity centers, laboratories and workshops, teacher-directed presentations, etc.) to teach mathematical content topics appropriate for the early and intermediate grades to all children, including those from non-mainstreamed populations.
- D. Identify and use alternative methods for assessing students' work in mathematics in the early and intermediate grades.
- E. Solve problems in the mathematical content areas of logic, number theory, geometry, algebra, probability, and statistics appropriate for adaptation to the early and intermediate grades.
- F. Know and explain the learning progression in relation to the standards-based mathematics curriculum, the key elements of the National Council of Teachers of Mathematics Principles and Standards for School Mathematics, and the key elements of the Virginia Standards of Learning for Mathematics.

Additionally, this course supports the CEHD Core Values of collaboration, ethical leadership, research-based practice, social justice, and innovation. Statements of these goals are at <http://cehd.gmu.edu/values/>.

Professional Standards (Interstate Teacher Assessment and Support Consortium (InTASC) & Association for Childhood Education International Elementary Education Standards (ACEI):)

Upon completion of this course, students will have met the following professional standards:

Course Student Outcomes (above)	INTASC Standard (2011)	ACEI
A Essential math	#4	1.0
B Planning and Teaching using manipulatives	#7	3.1
C Instructional Strategies	#8	1.0, 2.3, 3.1, 3.3, 3.4
D Assessing	#6	4.0
E Problem Solving	#5	2.3
F Learner Development and understanding of Learning Progression	#2/#1	1.0

INTASC Standard (2011)
<p>Standard #4: Content Knowledge</p> <p>The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.</p>
<p>Standard #7: Planning for Instruction</p> <p>The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.</p>
<p>Standard #8: Instructional Strategies</p> <p>The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.</p>
<p>Standard #6: Assessment</p> <p>The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.</p>
<p>Standard #5: Application of Content</p> <p>The teacher understands how to connect concepts and use differing perspectives to engage learners in</p>

critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
Standard #1: Learner Development. The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
Standard #2: Learning Differences The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

Association for Childhood Education International Elementary Education Standards 2007
1.0 Development, Learning, and Motivation --Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge, and motivation.
2.3 Mathematics —Candidates know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so they consistently engage problem solving, reasoning and proof, communication, connections, and representation.
3.1 Integrating and applying knowledge for instruction —Candidates plan and implement instruction based on knowledge of students, learning theory, connections across the curriculum, curricular goals, and community.
3.5 Communication to foster collaboration —Candidates use their knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the elementary classroom.
4.0 Assessment for instruction —Candidates know, understand, and use formal and informal assessment strategies to plan, evaluate and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each elementary student.

Course & PBA	INTASC	ACEI
552 Math Student Assessment Interview	#4 Content Knowledge #1 & #2 Learner Development & Differences #6 Assessment	1.0 Development 2.3 Math 3.1 Planning Instruction 3.5 Communication 4.0 Assessment

Required Texts

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2015). *Elementary and Middle School Mathematics: Teaching Developmentally*. (9th edition) New York : Allyn and Bacon

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

- **Assignments and Examinations**

Participation & Professional Dispositions (10%)

Addresses Learner Outcomes: A, B, C, D, E, F

Rich, meaningful, problems will be assigned for each class session. Students are expected to complete these problems during class and incorporate their thinking about strategies used to solve the problems in class discussions. Work on problem sets will be shared in class and on occasion may be collected and evaluated. Students are expected to analyze and reflect on solution strategies, provide differentiated approaches to center activities, and actively participate in class discussions by applying field experiences and class readings. Professional dispositions are to be displayed at all times while interacting with the instructor and other students. Cell phones are not to be used during class. Laptops are to be used for instructional purposes only.

Mathematics Routine and Practices Inventory Assignment (10%)

Addresses Learner Outcomes: A, C, D, E, F

Students will observe mathematics routines and practices used in primary and upper grade classrooms and reflect on the opportunities to learn mathematics.

Student Assessment Interview: Course Performance Based Assessment (30%)

Addresses Learner Outcomes: A, B, C, D, F

In order to plan effective instruction, you will need to know how to assess children's knowledge of mathematical concepts. One way to assess children's thinking is a diagnostic assessment. This assignment has two parts: (1) Design a plan for the assessment, assessing a specific mathematics topic using concrete, pictorial and abstract representations, (2) Conduct the assessment with a child and write a report describing the outcome of the assessment. Based upon feedback from the instructor on your plan, you may make modifications to the final plan and report. The PBA will be turned in via Tk20 on Blackboard, under Assessments.

Problem-based/Inquiry Lesson Plans & Written Summaries (30%)

Addresses Learner Outcomes: A, B, C, D, E, F

You are required to plan, teach, and complete a formal summary for each mathematics lesson. Each lesson will place an emphasis on five practices that promote productive discussions: Anticipating, Monitoring, Selecting, Sequencing, and Connecting. Each lesson should be written in the Modified GMU Elementary Lesson Plan Format and follow the guidelines set forth by the grading rubric posted on Blackboard. Documents that should be included are: the lesson plan, reflection, anticipated student responses and student work samples.

- **Group Problem-Based Unit Plan (15%):** The first lesson will be taught by a small group and presented to your classmates as a simulated lesson. Each group is expected to: 1) design a Power Point slide and e-mail it to your instructor the Wednesday before class; 2) anticipate possible student responses by solving the problem using all three representations (concrete, pictorial, abstract); and 3) bring 10 copies of the anticipated student responses to class on the day of the presentation. The group will complete one written reflection on this experience. See rubric/Blackboard for more detail.
- **Individual Problem-Based Lesson Plan (15%):** Within the Group Problem-Based Unit co-developed with their peers (in class), each individual will teach/lead one lesson to elementary students in a whole class setting. Each individual will complete a written reflection on this experience. See rubric/Blackboard for more detail.

STEM festival activity differentiated for diverse learners (20%)

Addresses Learner Outcomes: C, D, E

Differentiated Lesson Analysis will consist of teaching a lesson to both primary and upper grade levels during the STEM festival. Details for this assignment are on Blackboard. **This lesson should be videotaped.** Students will analyze their videos and examine the richness of the mathematics; errors and imprecision; working with students and mathematics; student participation in meaning-making and reasoning; and connections between classroom work and mathematics.

- **Other Requirements**

- **Attendance:** It is your responsibility to attend all class sessions. You are held accountable for all information from each class session whether you are present or not. Reasons for any absence must be reported to the instructor in writing.
- **Tardiness:** It is your responsibility to be on time for each class session. Reasons for any absence must be reported to the instructor in writing.

Note: Faculty reserve the right to add, alter, or omit any assignment as necessary during the course of the semester. You will always receive advanced notice of any modifications.

- **Course Performance Evaluation Weighting**

The assignments across the semester are intended to further your understandings of what it means to teach, learn, and assess mathematics in light of current reforms in mathematics education. All assignments are to be turned in to your instructor on time. **Late work will not be accepted for full credit.** If the student makes prior arrangements with the instructor, assignments turned in late will receive a 10% deduction from the grade per late day or any fraction thereof (including weekends and holidays).

- Participation and Professional Dispositions (10%)
- Selecting and Sequencing Assignment (10%)
- Individual Student Assessment (30%)
- Problem-Based Lesson Plan Smmaries (30%)
- Mathematics Content & Pedagogy Assessments (20%)

- **Grading Policies**

The mathematics education courses in GSE’s Elementary Education Program integrate pedagogy and mathematics content appropriate for the elementary school grades. For students to earn a grade of A in the course, they must demonstrate excellence in *both* the pedagogical knowledge and the content knowledge of the mathematics appropriate at their level of teaching. Thus, the grading in the course is structured to help evaluate fairly student excellence in both areas. Problem sets and assessment work focuses primarily on ascertaining student excellence in handling mathematics content appropriate for the elementary grades, and represents 50% of students’ grades. Pedagogical knowledge is ascertained primarily from readings, assignments and participation in the course, and represents 50% of students’ grades. Therefore students who demonstrate excellence in both pedagogical knowledge and content knowledge receive grades of A.

At George Mason University course work is measured in terms of quantity and quality. A credit normally represents one hour per week of lecture or recitation or not fewer than two hours per week of laboratory work throughout a semester. The number of credits is a measure of quantity. The grade is a measure of quality. The university-wide system for grading graduate courses is as follows:

Grade	GRADING	Grade Points	Interpretation
A	94-100	4.00	Represents mastery of the subject through effort beyond basic requirements.
A-	90-93	3.67	
B+	85-89	3.33	Reflects an understanding of and the ability to apply theories and principles at a basic level
B	80-84	3.00	

C*	70-79	2.00	Denotes an unacceptable level of understanding and application of the basic elements of the course
F*	<69	0.00	

Note: "C" is not satisfactory for a licensure course.

"F" does not meet requirements of the Graduate School of Education

TK20/Performance-Based Assessment(s) Submission Requirement

Every student registered for any Elementary Education course with a required TK20 performance-based assessment (designated as such in the syllabus) must submit this/these assessment(s) (**EDCI 552: Student Assessment Interview**) to Tk20 through 'Assessments' in Blackboard. Failure to submit the assessment(s) to Tk20 (through Blackboard) will result in the course instructor reporting the course grade as Incomplete (IN). Unless this grade is changed upon completion of the required Tk20 submission, the IN will convert to an F nine weeks into the following semester.

Professional Dispositions

Students are expected to exhibit professional behaviors and dispositions at all times. (See Elementary Education Program Handbook).

WORK TIMELINESS EXPECTATIONS:

It is expected that all class assignments will be submitted on time to the correct location; therefore, late assignments will not receive full credit. Assignments turned in late will receive an automatic deduction of one letter grade making the highest possible score equivalent to 80% (B). All assignments must be submitted by the beginning of class (Eastern standard time) on the due date stated within the syllabus (see below) and should only be submitted via Blackboard.

If you are unable to complete an assignment due to an emergency or difficult circumstance, communication must be made with the instructor via email or in person. In situations that are deemed an emergency or a difficult circumstance, I will work with you to set a new submission date that will not be considered late.

OTHER EXPECTATIONS

All written papers are expected to be double-spaced, with 1” margins, and in 12-point font (Times New Roman, Calibri, or Arial). APA format is expected. If you do not have a 6th Edition APA manual, the OWL at Purdue is an excellent resource:

<http://owl.english.purdue.edu/owl/resource/560/01/>

*Please Note: The GMU Writing Center offers online support via email. They will provide feedback on your writing within one hour. Graduate and professional writing can be difficult; I encourage you to take advantage of this service. http://writingcenter.gmu.edu/?page_id=177

Professional Dispositions

Students are expected to exhibit professional behaviors and dispositions at all times (See Elementary Education Program Handbook).

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

GMU Policies and Resources for students

Policies

- a. Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).
- b. Students must follow the university policy for Responsible Use of Computing

(see <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).

- c. Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.
- d. Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <http://ods.gmu.edu/>).
- e. Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.

Campus Resources

- a. Support for submission of assignments to Tk20 should be directed to tk20help@gmu.edu or <https://cehd.gmu.edu/aero/tk20>. Questions or concerns regarding use of Blackboard should be directed to <http://coursesupport.gmu.edu/>.
- b. For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

For additional information on the College of Education and Human Development, please visit our website <http://cehd.gmu.edu/>.

For additional information on the College of Education and Human Development, Graduate School of Education, please visit our website [See <http://gse.gmu.edu/>].

Emergency Procedures

You are encouraged to sign up for emergency alerts by visiting the website <https://alert.gmu.edu>. There are emergency posters in each classroom explaining what to do in the event of crises. Further information about emergency procedures exists on <http://gmu.edu/service/cert>

Memo:

To: all CEHD students seeking student teaching internships in spring 2019 and forward

From: Jeff Davis, Director of Educator Preparation, CEHD

Re: Internship application requirements

Date: May 1, 2017

Students – please note the following requirements for Spring 2018 internship applications. No extensions to the application deadlines will be given for missing/incorrect/failing test scores, missing endorsements, or missing/incorrect CPR/AED/First Aid certifications.

Student Clinical Practice: Internship Application Requirements

TESTING

Since 2015, internship applications must include all official and passing test scores must be submitted and in the Mason system (i.e. Banner/PatriotWeb) by the internship application deadline. Allow a minimum of six weeks for official test scores to arrive at Mason. Testing too close to the application deadline means scores will not arrive in time and the internship application will not be accepted.

For Spring 2019 internships, this means that the latest you could test in time for scores to be reported to Mason by September 15th is August 1st

Required tests:

Praxis Core Academic Skills for Educators Tests (or qualifying substitute)

VCLA

RVE (specific programs only...see link below)

ACTFL (Foreign Language only...unofficial scores are acceptable *for this test only*)

Praxis II (content knowledge exam in your specific endorsement area)

For details, please check <http://cehd.gmu.edu/teacher/test/>

ENDORSEMENTS

Please note that ALL endorsement coursework must be completed, with all transcripts submitted and approved by the CEHD Endorsement Office, prior to the internship application deadline. Since the internship application must be submitted in the semester prior to the actual internship, please make an appointment to meet with the Endorsement Specialist and plan the completion of your Endorsements accordingly.

CPR/AED/First Aid – NEW hands-on training required for licensure!

Due to a recent change in Virginia law, effective July 1, 2017, all new license applications and license renewals must include verification that “hands-on” First Aid/CPR/AED training was completed. This means that applications for spring 2018 internships must also include verification of completing “hands-on” training. After June 30, 2017, the online training will no longer be accepted.

Emergency First Aid, CPR, and Use of AED Certification or Training requirement must be submitted and in the Mason system (i.e. Banner/PatriotWeb) by the application deadline. Students must submit one of the "acceptable evidence" documents listed at <http://cehd.gmu.edu/teacher/emergency-first-aid> to CEHD Student and Academic Affairs. In order to have the requirement reflected as met in the Mason system, documents can be scanned/e-mailed to CEHDacad@gmu.edu or dropped-off in Thompson Hall, Suite 2300.

DYSLEXIA AWARENESS TRAINING – NEW requirement for licensure!

Effective July 1, 2017, every person seeking initial licensure or renewal of a license shall complete awareness training, provided by VDOE, on the indicators of dyslexia, as that term is defined by the board and regulations, and the evidence-based interventions and accommodations for dyslexia.

The training module is located at

<http://www.doe.virginia.gov/teaching/licensure/dyslexia-module/story.html>.

Similar to the Child Abuse Prevention Module, students will need to save and print out the completion certificate at the end of the module.

BACKGROUND CHECKS/FINGERPRINTING

All local school systems require students to complete a criminal background check through their human resources office (not through George Mason University) prior to beginning the internship. Detailed instructions on the process will be sent to the student from either the school system or Mason.

When applying for their background check/fingerprinting, students are strongly advised to disclose any/all legal incidents that may appear on their records. School divisions can and will withhold internship placement if discrepancies are found between a student’s disclosure and their official judicial record. Students must assume the risk that classes may be deferred and their program progress delayed or altered due to the individual severity of notations on such a check and review by individual agencies.

PLEASE NOTE:

Your G# must be clearly noted (visible and legible) on the face of any & all documents that you submit.

APPLICATION

The internship application can be downloaded at <http://cehd.gmu.edu/teacher/internships-field-experience>

DEADLINES

Spring 2019 internship application deadline:

* Traditional Internship: *September 15, 2018*

* On-the Job Internship: *November 1, 2018*

If you have any questions about the above requirements, don't wait - please contact your advisor or the Clinical Practice Specialist at internsh@gmu.edu Please be sure to include your G# and program/content area information in your email.

This communication to you, including all requirements and deadlines, will be referenced upon receipt of any request for application deadline extension.

Course Schedule – will be provided in class

INDIVIDUALIZED INSTRUCTION AND ASSESSMENT PLAN TASK

George Mason University College of Education and Human Development
Elementary Education Program

In the Elementary Education program, the Individualized Instruction and Assessment Plan Task is completed during EDCI 552 and is assessed by the instructor. The candidate must earn a score of 3 to be successful on this assignment. If a student does not earn a 3 on the assignment, they must meet with the course instructor or assessor prior to resubmitting. The data from this assessment are used to identify both best practice and identified gaps in developing and assessing a specific lesson plan to impact on individual learning.

STANDARDS

- **InTASC Standards:** 1, 2, 5, 6, 7, 8
- **CAEP Standards:** 1.1, 1.3, 1.4, 1.5
- **VDOE Standards:** 1, 2, 3, 4, 5
- **SPA Standards:** ACEI 1, 3.1, 3.2, 3.3, 4

THEMES

- **Technology**
- **Diversity**
- **College & Career Ready**

ASSESSMENT OBJECTIVES

- The candidate will use knowledge of individual learning differences and assessment to develop an instructional plan for a learner with developmental, learning, physical or linguistic differences.
- The candidate will develop an assessment of learner progress.

RATIONALE

Lesson planning is an essential skill for an educator. A lesson plan is a road map for instruction. When planning teachers and teacher candidates need to answer four main questions:

- Who are my learners? (Context/Learner Needs)
- What do the learners need to know and be able to do? (Objectives/Goals)
- How will I get all learners to know and do the new tasks? (Teaching and learning strategies)
- How will I know the learning objectives were achieved? (Goals/Outcomes/Assessments)

The first step in planning is aligning the learning objectives with the goals/outcomes/assessments for the lesson. This should include considerations based on learner abilities, challenges, and prior knowledge. Before developing specific learning activities, determine how you will assess if learners have met the lesson objectives. Once you know how you will assess learning, you can develop activities that align instruction with the assessment. Additionally, a teacher must consider learner prior knowledge, how to differentiate to meet learner needs, and how to do so within the time allotted. Lesson plans include pacing, transitions, checking for understanding, and ideas for re-teaching or extending learning based upon learner needs.

The planning process is the same whether you are planning a lesson for a class or for an individual. For this assessment you will develop an instructional plan for a learner with developmental, learning, physical or linguistic differences, including a plan for assessing the learner's progress.

ASSESSMENT DIRECTIONS

Candidates will develop an individualized plan for a child with developmental, learning, physical, or linguistic differences within the context of the general environment and curriculum. *The lesson does not have to be taught, though it can be taught or co-taught, based upon your program and clinical placement options.* The individualized instruction and assessment plan should include the following sections:

Section 1. Description of the Learner (2-3 pages)

Who is the learner? Seek out an individual who can provide you with a picture of who the individual is as a learner. Describe the individual include cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational progress and statement of educational need.

Include in your planning a response to the following question: How do you address the special needs of the learner? Write a description of and rationale for instructional adaptations and accommodations needed.

Section 2. Learning Objectives and Rationale (1/2 – 1 page)

What should they learn? Identify at least three learning objectives/goals and develop a rationale that supports why the objectives/goals are meaningful learning outcomes. (Virginia Standards of Learning (SOLs), ASOLs, College-and-Career-Ready skills, and other content specific objectives should be included in lesson plans.)

Section 3. Instructional Strategies (1-2 pages)

How will you teach, and how will the individual learn? Describe at least three evidence-based instructional strategies that address the identified learning objectives/goals and reflect the learner's cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests and educational needs. Include the use of augmentative and alternative communication systems and assistive technologies or other appropriate technologies used to address learning needs. Write a rationale for each showing how the strategies support learning and success for this learner.

Section 4. Assessment and Documentation of Learner Progress (1-2 pages)

How will I know the learning objectives/goals were achieved? Write a plan for the assessment and documentation of the learner's progress toward the identified objectives/goals.

Section 5. Reflection (1-2 pages)

How long did the assessment last?

What did you learn about assessment techniques?

What did you learn about your ability to create mathematical questions and tasks for this concept?

If you were to conduct the assessment with another child, would there be any changes in your questions, either the order or level of difficulty, or the materials you had available for the child to use? Why or why not?

Reflect on your use of questioning? Did you use a variety of questions (high, low, mid, mixed)? What questions would you ask if you could do this assessment again?

What have you learned about how children learn mathematics from this assessment?

How might a teacher use the diagnostic mathematics assessment to assess children?

REFERENCE

Spencer, J. (2003). *Learning and teaching in the clinical environment*. London, England: BMJ Publishing Group.

INDIVIDUALIZED INSTRUCTION AND ASSESSMENT PLAN RUBRIC

George Mason University College of Education and Human Development
Elementary Education Program

In the Elementary Education program, the Individualized Instruction and Assessment Plan Task is completed during EDCI 552 and is assessed by the instructor. The candidate must earn a score of 3 to be successful on this assignment. If a student does not earn a 3 on the assignment, they must meet with the course instructor or assessor prior to resubmitting. The data from this assessment are used to identify both best practice and identified gaps in developing and assessing a specific lesson plan to impact on individual learning.

SCORING GUIDELINES

- **4 (Exceeds Standard):** Candidates receive a score of 4 if they perform beyond the expectations of candidates at this point in their programs. There is evidence that candidates have done additional research, identified additional resources, and/or demonstrate exceptional understanding and application of the standard.
- **3 (Meets Standard):** This is the TARGET score. This score reflects that candidates have met the standard at the level expected at this point in their program. Candidates who receive a 3 have successfully met the standard.
- **2 (Approaches Standard):** Candidates receive this score when their understanding and effort does not meet the target but shows basic understanding of the content being assessed.
- **1 (Does Not Meet Standard):** Candidates who do not submit work, and/or who submit work that is clearly below the expectations for a candidate at this point in their program.

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
SECTION 1. DESCRIPTION OF THE LEARNER				
<p>The candidate regularly assesses individual and group performance in order to design and adapt instruction to meet learners' needs in each area of development (cognitive, linguistic, social, emotional, and physical) and scaffolds the next level of development.</p> <p>InTASC 1; VDOE 1; ACEI 1.0</p>	<p>The candidate does not provide a description of the learner and/or does not include assessment data related to cognitive, linguistic, social, emotional, and/or physical and developmental skill levels and abilities, interests, or educational progress.</p>	<p>The candidate provides description of the learner that includes appropriate assessment data but does not address all of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, or educational progress.</p>	<p>The candidate provides description of the learner that includes appropriate assessment data on all of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational progress. The candidate describes current impact of learner characteristics on</p>	<p>The candidate provides description of the learner that includes both appropriate and multiple forms of assessment data on all of the following: cognitive, linguistic, social, emotional, and/or physical developmental skill levels and abilities, interests, and educational learning need. The candidate describes and provides examples of impact of learner characteristics on learning.</p>

			learning.	
<p>The candidate accesses resources, supports, and specialized assistance and services to meet particular learning differences or needs.</p> <p>InTASC 2; VDOE 1; ACEI 3.2</p>	<p>The candidate does not identify either adaptations or accommodations to support learner achievement of learning objectives.</p>	<p>The candidate identifies either adaptations or accommodations that do not fully align with identified needs.</p>	<p>The candidate identifies and describes appropriate adaptations or accommodations that support learner achievement of learning objectives/goals, including technology.</p>	<p>The candidate thoroughly describes multiple, appropriate adaptations or accommodations that clearly support learner achievement of learning objectives/goals, including technology.</p>

Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
Statement of Educational Need				
<p>The candidate effectively uses multiple and appropriate types of assessment data to identify each learner's learning needs and to develop differentiated learning experiences.</p> <p>InTASC 6; VDOE 4; ACEI 4.0</p>	<p>The candidate does not address learner educational needs or inappropriately uses assessment data to create a statement of educational need.</p>	<p>The candidate uses assessment data to create a statement of educational need that is not well aligned with assessment results.</p>	<p>The candidate uses assessment data to create an appropriate statement of educational need that is aligned with assessment results.</p>	<p>The candidate effectively uses assessment data from multiple sources to create a thorough and appropriate statement of educational need that is directly aligned with assessment results.</p>

SECTION 2. LEARNING OBJECTIVES

<p>The candidate individually and collaboratively selects and creates learning objectives that are appropriate for curriculum goals and content standards, and are relevant to learners.</p> <p>InTASC 7; VDOE 2; ACEI 3.1</p>	<p>The candidate identifies learning objectives that are either incomplete because related outcomes are not identified or the objectives are not directly related to learner educational need.</p>	<p>The candidate identifies learning objectives without relevance to learner educational need.</p>	<p>The candidate identifies learning objectives with related outcomes that are relevant to individual learner needs.</p>	<p>The candidate identifies distinct learning objectives with related outcomes that are relevant to individual learner needs. These learning outcomes allow for different and individualized learning pathways that can be accessed fluidly during instruction.</p>
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Rationale for Learning Objectives

<p>The candidate identifies objectives for instruction based on formative and summative assessment data, prior learner knowledge, and learner interest.</p> <p>InTASC 7; VDOE 2; ACEI 4.0</p>	<p>The candidate does not identify objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is missing or unclear.</p>	<p>The candidate selects objectives for the learner that are poorly aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is missing or unclear.</p>	<p>The candidate selects objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is clear.</p>	<p>The candidate selects objectives for the learner that are aligned to specific learning goals/outcomes and/or the relationship of the learning objectives to learner educational needs is clear. Rationales for the selection of those objectives and how they support the achievement of the learning goals are included.</p>
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SECTION 3. INSTRUCTIONAL STRATEGIES AND ADAPTATIONS

<p>The candidate plans how to achieve each learner's learning goals, choosing appropriate strategies and accommodations, resources, and materials to differentiate instruction for individuals and groups of learners.</p> <p>InTASC 7; VDOE 2; ACEI 3.2</p>	<p>The candidate does not identify instructional strategies or identifies instructional strategies that are not related to the learning objectives or learning needs.</p>	<p>The candidate identifies instructional strategies that are inappropriate for meeting the learning objectives or learning needs.</p>	<p>The candidate identifies evidence-based instructional strategies that are aligned to the learning objectives and learning needs.</p>	<p>The candidate identifies evidence-based instructional strategies that are aligned to specific learning objectives and learning needs.</p> <p>The candidate provides evidence of the effectiveness of these selected learning strategies through data analysis of the assessment.</p>
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Performance	Does Not Meet Standard (1)	Approaches Standard (2)	Meets Standard (3)	Exceeds Standard (4)
<p>The candidate uses a variety of instructional strategies to encourage learners to develop an understanding of the content and to apply knowledge in meaningful ways.</p> <p>InTASC 8; VDOE 3; ACEI 3.3</p>	<p>The instructional strategies used by the candidate do not encourage an understanding of content.</p>	<p>The candidate uses limited instructional strategies to encourage learners to develop an understanding of the content and to apply that knowledge in meaningful ways.</p>	<p>The candidate uses a variety of instructional strategies that encourage learners to develop an understanding of the content and to apply that knowledge in meaningful ways.</p>	<p>The candidate provides insight into their own pedagogical and content knowledge to discuss the selection of instructional strategies for the learning experience. These instructional strategies encourage all learners to develop an understanding of the content and authentic application of the new knowledge.</p>

<p>The candidate connects concepts and uses different perspectives and digital resources to engage learners in critical thinking, creativity, and collaborative problem solving.</p> <p>InTASC 5; VDOE 2; ACEI 3.3</p>	<p>Candidate does not connect concepts, address different perspectives or use digital resources to engage learners in higher-level learning.</p>	<p>Candidate connect concepts, addresses different perspectives or uses digital resources to engage learners but at a basic level of learning and recall.</p>	<p>Candidate connects concepts, addresses different perspectives and uses digital resources to engage learners in higher-level learning in using at least one of these higher-order skills: critical thinking, creativity, and collaborative problem solving.</p>	<p>Candidate creates multi-disciplinary opportunities and a range of multiple perspectives to engage learners in critical thinking, creativity, and collaborative problem solving.</p>
<p>Rationale for Instructional Strategies and Adaptations</p>				
<p>The candidate understands that each learner’s cognitive, linguistic, social, emotional, and physical development influences learning and knows how to make instructional decisions that build on learners’ strengths and needs.</p> <p>InTASC 1; VDOE 1; ACEI 1.0</p>	<p>The candidate does not provide rationales that are aligned to the specific instructional strategies and/or the relationship of instructional strategies to the learning objectives and learner educational needs is missing or unclear.</p>	<p>The rationales provided do not align to the specific instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet learner educational needs is unclear.</p>	<p>The rationales provided are aligned to instructional strategies and, the relationship of the instructional strategies to the learning objectives that meet learner educational needs is clearly identified.</p>	<p>The rationales provided are aligned to the strategies and, the relationship of the instructional strategies to specific learning objectives that meet learner educational needs is clearly and effectively aligned. Multiple pathways to learner achievement of the learning outcomes are provided.</p>
<p>SECTION 4. ASSESSMENT AND DOCUMENTATION OF LEARNER PROGRESS</p>				

<p>The candidate designs assessments that match learning objectives with assessment methods and minimizes sources of bias that can distort assessment results.</p> <p>InTASC 6; VDOE 4; ACEI 4.0</p>	<p>The candidate does not describe an assessment plan that evaluates all learning objectives or describes a plan that does not directly measure all of the learning objectives (e.g., is not observable, measurable).</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives but does not include documentation of both formative and summative measures that (and) does not address possible assessment bias.</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives and includes both formative and summative assessments that minimize sources of bias.</p> <p>The candidate describes the assessment results that would prompt modification of instructional plans and those specific modifications.</p>	<p>The candidate describes an assessment plan that evaluates all learning objectives, includes formative and summative assessments that minimize sources of bias and includes multiple data sources for each objective.</p> <p>The candidate describes multiple assessment results that would prompt modification of instructional plans and those specific modifications.</p>
<p>SECTION 5 REFLECTION</p>				
<p>The candidate uses ongoing analysis and reflection to improve planning and practice</p> <p>InTASC 9; ACEI 5.1</p>	<p>There was no evidence that the candidate used ongoing analysis and/or reflection to improve planning and practice.</p>	<p>The candidate uses marginal analysis and reflection strategies to improve planning and practice.</p>	<p>The candidate uses ongoing analysis and reflection to improve planning and practice</p>	<p>The candidate effectively uses ongoing analysis and deep reflection to improve planning and practice.</p>