![Minnesota Department of Education logo] **DEPARTMENT OF EDUCATION**

Formative Assessment Unit Planning Tool – Prekindergarten Mathematics Plus

Name of Instructional Unit: Measurement

Age/Grade Level: Prekindergarten (i.e., the 4–5 year old age band in the Early Childhood Indicators of Progress, or ECIPs, which is the same as the year before kindergarten entry)

ECIP Domain(s) of Learning (e.g. Content Areas): Mathematics (Early learning lessons usually cover knowledge/skills in more than one domain of learning. This Unit Planning Tool notes that other domains that could be addressed include Language, Literacy, and Communications; Social Emotional Development; Approaches to Learning; and Scientific Thinking.)

This Formative Assessment Unit Planning Tool differs slightly from other K–12 Planning Tools, given that the language mirrors that used in the ECIPs and the likelihood of addressing additional domains of learning.

Goals of the Instructional Unit

ECIP Domain: Mathematics

Component Area: *Components M7: Measurement.*

- Child recognizes and makes comparisons of measurable attributes (length, height, width, area, volume, physical distance, time duration)

Skill and Knowledge Goals:

- M7.9: Compares and orders more than two items in some way

- M7.10: Uses comparison vocabulary (longer/shorter, taller/shorter, farthest/closest)

Learning Progression – Prior Skills and Knowledge: 3–4 year olds

- M7.7 Shows understanding of measurement terms (longer/shorter, fullest, farthest, closest)

- M7.8 Uses terms like more/less; a little bit; a lot

Learning Progression – Next Step(s): Kindergarten Mathematics Standards

2022 Anchor Standard(s):

- Strand - Spatial Reasoning
- Standard - Measurement: Investigate measurement using a variety of tools, units, systems, processes and techniques in various cultures. Explain and reason with attributes, estimations and formulas to communicate measurement(s) and relationships effectively. Justify decisions and consider the reasonableness of the measurement.

2022 Benchmark(s)

- K.0.2.1.1 Compare objects with a measurable attribute in common, to see which object has "more of," "less of" or the "same as" the attribute and explain the reasoning.
- K.0.2.3.2 Describe several measurable attributes of objects such as length and weight.

2007 Anchor Standard(s):

- Strand - Geometry & Measurement
- Standard - Compare and order objects according to location and measurable attributes.

2007 Benchmarks

- K.3.2.1 Use words to compare objects according to length, size, weight and position
- K.3.2.2. Order 2 or 3 objects using measurable attributes such as length and weight

Formative Assessment Ideas:

IMPORTANT NOTE ABOUT MDE-ENDORSED EARLY LEARNING ASSESSMENTS FOR HIGH-QUALITY PREKINDERGARTEN PROGRAMS: A critical component of MDE's Preschool to Grade Three (P3) Comprehensive Assessment System are age-appropriate [Kindergarten Entry Profile (KEP)-approved assessments](). These standards-based assessments produce valid and reliable data and are also high-quality, comprehensive and developmentally appropriate. Notably, KEP assessments are formative assessments. The data from KEP assessments can be used on a real-time basis by teachers to inform and guide instruction. MDE encourages Pre-K–3rd Grade (P3) systems to consider adopting KEP-approved assessments since these assessments can be used with children across ages, grades and programs. Two high-quality state-funded prekindergarten programs, voluntary prekindergarten (VPK) and school readiness plus (SRP), are required to use KEP assessments.

- During the lesson: Ask questions and engage with students during the lesson (see below).
- After the lesson:
    - Incorporate the knowledge and skills covered in this unit/lesson into other instructional time (like morning meeting, snack time, and read aloud time) and ask questions and engage with students:
        - Snack Time: ask students to order their snacks by size.
        - Morning Meeting: ask students to compare two students' heights.
        - Read Aloud Time: Ask students to answer who is close to the reader and who is far from the reader.
    - Create new/different opportunities for students to practice, learn, and demonstrate the skill/knowledge with their peers.
        - Hands-on practice with manipulatives.
        - Create a new learning center.
    - Provide formal opportunities for students to practice, learn, and demonstrate the skill/knowledge.
    - Observe students throughout their day.
    - Encourage families to record a video or take pictures of a student engaging in a home project on measurement.

Note Regarding Students with Disabilities: Consider whether modifications are necessary to any materials so that children with disabilities can meaningfully participate. It may be necessary to (a) use simplified language or (b) scaffold any vocabulary or concept instruction with visuals in order to facilitate comprehension and learning. *Always refer to a child's Individualized Education Program (IEP) to determine what accommodations or modifications are appropriate.*

Note Regarding Multilingual Learners: Keep in mind that multilingual learners may understand and be able to demonstrate some of the concepts around measurement, but may not have the English language vocabulary necessary for the verbal component. Teachers should try to determine whether multilingual learners have the vocabulary in a language other than English and it may be necessary to use simplified language. *Modeling language/vocabulary is extremely important for these students.*

Modified from Evans, C. M. & Thompson, J. (2020). *Classroom Assessment Learning Modules* and Wiliam, D. (2018). *Embedded formative assessment, 2nd ed.* Bloomington, IN: Solution Tree Press.

Additional Domains of Learning and Components to Be Integrated: Early learning lessons usually cover knowledge/skills in more than one domain of learning. It is the intention that these additional domains of learning and components be integrated and taught depending on the lesson, activity, or learning center.

ECIP Domain: Approaches to Learning

Component Area(s):

AL3 Attending: Child focuses visual and auditory attention on relevant aspects of the environment.

- AL 3.7 Attends large group activities led by teacher for sustained periods
- AL 3.8 Participates in large group activities and discussions
- AL3.9 Listens to others

AL12 Cognitive Flexibility/Reasoning: Child considers more than one possible outcome to a problem or situation; begins to create theories for why things happen; can recognize how one thing relates to or affects another thing.

- AL 12.8 Draws conclusions and can explain their thinking
- AL 12.9 Considers another point of view and will change opinion or idea when faced with new information
- AL 12.10 Collaborates with others to investigate a situation or problem

ECIP Domain: Language, Literacy, and Communications (Note that M7.10 explicitly includes comparison vocabulary.)

Component Area(s):

L3 Vocabulary and syntax: Child understands word order and grammatical rules.

- L3.14 Uses sentences that express logical relationships between concepts
- L3.15 Uses increasingly specific words to name objects and their features and functions

ECIP Domain: Scientific Thinking

Component Area(s):

ST1 Observe and Question: Child demonstrates awareness and engagement with phenomena, materials, and environment.

- ST 1.7 Verbally identifies obvious differences and similarities

ST2: Investigate: Child actively shows wonder by demonstrating curiosity of self and others and surroundings.

- ST2.11 Uses discernment to inform exploration

ECIP Domain: Social and Emotional Development

Component Area(s):

S2 Self Awareness: Child demonstrates understanding and appreciation of uniqueness in own family, community, culture and the world.

- S2.6 Shows increasingly accurate understanding of own strengths, preferences, limitations, and personal qualities
- S2.7 Demonstrates growing interest in and awareness of similarities and differences between self and others

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