Khan Schools Network

Mastery-Based Learning Planning Examples

Core Process

Defining Mastery Levels

Standard Level (Math, Grade 3)

Level: Standard (CCSS.MATH.CONTENT.3.OA.C.7 – Multiply and divide within 100).
Essential Skills/Knowledge: Students must fluently multiply and divide within 100, using mental strategies and known multiplication facts.

Lesson Level (ELA, Grade 2)

Level: Lesson (Reading comprehension lesson on identifying main ideas and supporting details).
Essential Skills/Knowledge: Students must demonstrate the ability to identify the main idea and at least two supporting details in a short non-fiction text.

Unit Level (Science, Grade 6)

Level: Unit (NGSS MS-PS1-4 – Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance).
Essential Skills/Knowledge: Students must demonstrate mastery of particle theory by constructing models that show how matter changes between states (solid, liquid, gas) as a result of temperature changes.

Course Level (History, Grade 11)

Level: Course (US History, 1865–Present).
Essential Skills/Knowledge: Students must demonstrate an understanding of key historical events from Reconstruction to the present, including the ability to analyze primary sources, understand cause and effect, and connect historical themes to modern-day issues.

What Mastery Looks Like

Standard Level (Math, Grade 5)

Definition: Mastery of CCSS.MATH.CONTENT.5.NBT.B.7 is defined as the ability to add, subtract, multiply, and divide decimals to hundredths, using models or strategies based on place value. Students must solve at least 85% of problems correctly in both word problem and numeric formats.

Lesson Level (ELA, Grade 4)

Definition: Mastery is defined as the student's ability to identify the theme of a fictional story and explain how the author uses characters and plot to convey that theme. Students must be able to

write a one-paragraph explanation supported by text evidence, scoring at least 80% on the rubric.

Unit Level (Science, Grade 7)

Definition: Mastery is defined as the ability to explain the process of photosynthesis through a combination of a written explanation and a labeled diagram. Students must score at least 85% on the rubric, which evaluates accuracy, understanding of key concepts (light, water, CO2, and glucose), and the ability to connect photosynthesis to the food chain.

Course Level (World Languages, Spanish I)

Definition: Mastery is defined as the ability to hold a simple conversation in Spanish using present tense verbs, ask and answer questions about daily activities, and write a short paragraph describing a typical day. Students must demonstrate this through both oral and written assessments, achieving 80% or higher on both.

Planning Assessments

Standard Level (Social Studies, Grade 8)

Assessments:

- **Multiple-choice quizzes:** Mastery is demonstrated by achieving at least 80% accuracy across two attempts, showing consistent understanding of key facts and concepts. Students may take quizzes when they feel ready, with retakes available for further learning.
- **Document-Based Questions (DBQs):** Mastery is defined as successfully analyzing primary sources, drawing logical conclusions, and supporting answers with evidence. Students must achieve a score of 85% or higher on at least one DBQ attempt to demonstrate mastery and can retake or revise until mastery is achieved.
- **Short essay:** Mastery is achieved by scoring 85% or higher on the rubric evaluating thesis clarity, evidence use, and coherence. Students may submit drafts for feedback and revisions until they meet the mastery criteria.
- **Summative assessment (Final project: Timeline of major inventions):** Mastery is demonstrated by scoring 90% or higher on the rubric. Students will work on this project throughout the unit and submit it when they are confident in their understanding.

Why these assessments?: These varied assessment types allow students to demonstrate mastery of both factual knowledge and analytical skills related to the Industrial Revolution, which is a key standard in US history.

Lesson Level (Math, Grade 2)

Assessments:

1. **Formative assessment (Exit tickets):** Mastery is demonstrated when students solve 90% of subtraction problems correctly across three consecutive exit tickets. Students can take exit tickets as often as needed until they demonstrate consistent mastery.
2. **Summative assessment (Performance task using manipulatives):** Mastery is achieved by scoring 85% or higher, demonstrating accurate subtraction and explanation. Students can take this assessment when they feel ready after practicing with manipulatives.
3. **Project-based assessment (Real-world subtraction scenario):** Mastery is achieved by solving real-world problems with 85% accuracy. Students will present their project when they are confident they can apply subtraction strategies effectively.

Why these assessments?: Daily exit tickets provide immediate feedback on students' grasp of subtraction strategies. The performance task shows their ability to apply subtraction in practical scenarios, while the real-world project helps assess deeper understanding and application of subtraction.

Unit Level (ELA, Grade 10)

Assessments:

- **Reading comprehension quizzes:** Mastery is defined as scoring 80% or higher on at least two quizzes to demonstrate consistent comprehension of themes, characters, and plot. Students may take quizzes at their own pace as they progress through the unit.

- **Socratic seminars:** Mastery is achieved by meeting expectations on the participation rubric with a score of 85% or higher in at least one seminar, but students are encouraged to participate in multiple discussions to strengthen their critical thinking. Seminar scheduling is flexible, allowing students to prepare before contributing.

- **Literary analysis essay:** Mastery is demonstrated by scoring 85% or higher on the rubric. Students may submit multiple drafts and revise their work until they achieve mastery.

Why these assessments?: The combination of quizzes, discussions, and essays allows students to demonstrate comprehension, critical thinking, and writing skills, ensuring a comprehensive grasp of the themes and elements in the unit.

Course Level (Science, Biology)

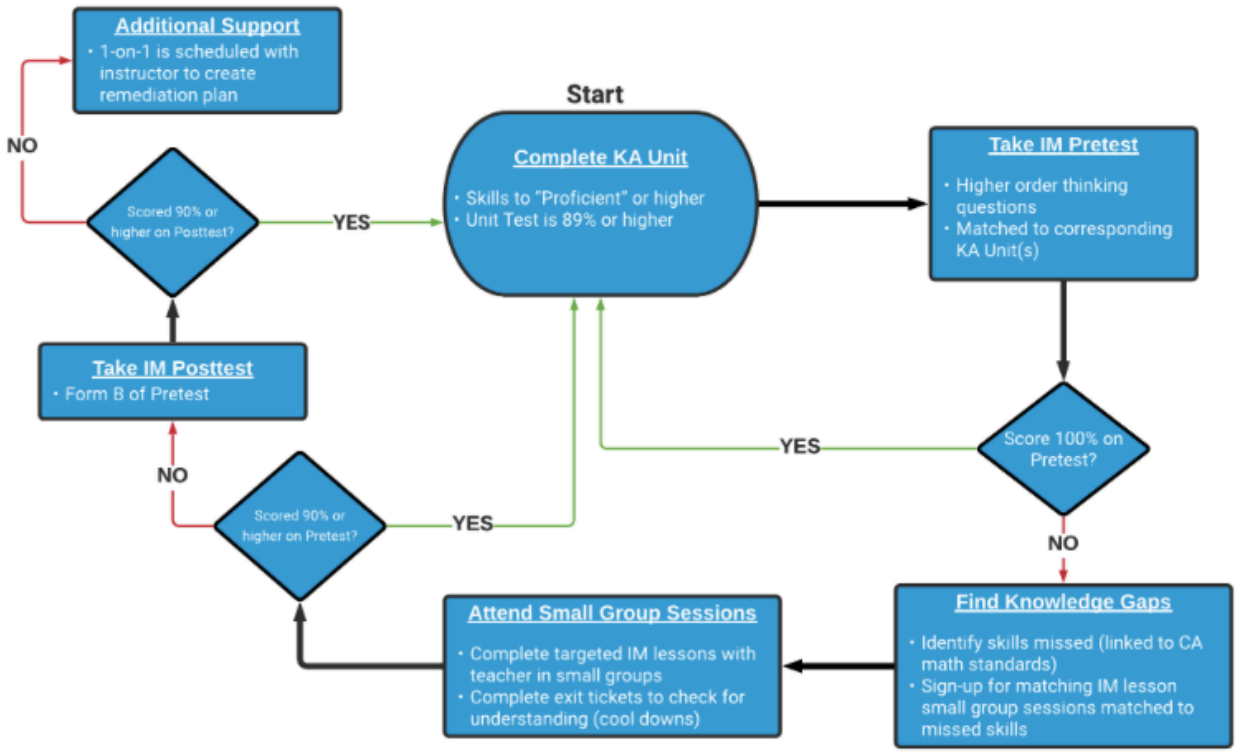
Assessments:

- **Lab reports:** Mastery is demonstrated by scoring 85% or higher on two lab reports throughout the semester, showing consistent application of the scientific method. Students may choose which labs they want to revise or submit for mastery.

- **Chapter quizzes:** Mastery is achieved by scoring 80% or higher on at least three quizzes, indicating a strong understanding of core biology concepts. Students may take quizzes when they feel ready, with opportunities for revision and retakes.
- **Final research project (Genetic mutations):** Mastery is demonstrated by achieving 90% or higher on the project rubric. Students will work on the project at their own pace, with regular checkpoints for feedback, and submit when ready.
- **Final exam:** Mastery is defined as achieving 85% or higher. Students may take a practice exam first and use it as a mastery checkpoint to prepare for the final assessment.

Why these assessments?: Biology involves both theoretical and practical knowledge. Lab reports and research projects show application of scientific methods, while the final exam assesses overall content mastery.

Designing the Mastery Path



Unit Level (Khan Academy Math, Pictured)

1. The student begins by completing a Khan Academy (KA) unit. The goal is to reach proficiency, or achieve a unit test score of 89% or higher.
2. **Take Pretest:** After completing the KA unit, the student takes a pretest with higher-order thinking questions that align with the corresponding KA unit.

    a. **If they score 100% on the pretest:** The student moves on directly to the post-test phase.
    b. **If they score less than 100%:** They move to the next step, which involves finding knowledge gaps.
3. **Find Knowledge Gaps:** If the student doesn't score 100% on the pretest, they need to identify the skills they missed. These missed skills are linked to math standards, and the student must sign up for small group sessions to target the missed skills.
4. **Attend Small Group Sessions:** The student completes targeted lessons with a teacher in small groups. They also complete exit tickets (or "cool downs") to check their understanding.
    a. **If they score 90% or higher on the pretest after reviewing the material:** The student moves forward to the post-test phase.
    b. **If they score less than 90%:** They receive additional support, which includes a 1-on-1 meeting with the instructor to create a remediation plan.
5. **Take IM Posttest:** After either reaching proficiency in small groups or remediation, the student takes a post-test (Form B of the pretest).
    a. **If they score 90% or higher on the post-test**: The mastery path is complete.
    b. **If they score less than 90%:** They receive additional support, and the cycle repeats.

Course Level (History, Grade 11)

I'll have mastered this course when I can:

- **Research key figures** and events from the American Revolution and present my findings clearly.
- **Use primary and secondary sources** to support my research and arguments.
- **Score at least 85%** on research papers, presentations, quizzes, and discussions.
- **Revise my work** after feedback from my teacher or peers.

Steps to Mastery:

Step 1: Pre-Assessment

- **Task:** Take a pre-assessment quiz to check my knowledge of the American Revolution.
- **Criteria for Mastery:** I must score 85% or higher.
- **Mastery Check:** My teacher will grade the quiz and give feedback on areas that need further study.
- **Opportunities for Revision:** If I don't pass, I can review additional materials and retake parts of the pre-assessment to ensure I'm ready to move forward.

Step 2: Research Project

- **Task:** Research a key figure from the American Revolution and create a presentation.

- **Criteria for Mastery:** I must score 85% or higher on the project rubric, which assesses research accuracy, the use of sources, and presentation quality.
- **Mastery Check:** My teacher will provide feedback at specific checkpoints during the research and presentation process.
- **Opportunities for Revision:** Based on the feedback I receive at each checkpoint, I will have a chance to revise my research and presentation before the final submission.

Step 3: Unit Readings and Discussions

- **Task:** Read assigned texts and participate in class discussions about the causes and effects of the American Revolution.
- **Criteria for Mastery:** I must score 85% or higher on reading comprehension quizzes and actively contribute to discussions.
- **Mastery Check:** My teacher will grade quizzes and participation, giving immediate feedback.
- **Opportunities for Revision:** If I don't meet the mastery criteria for the quizzes or discussions, I'll be able to review the readings and retake quizzes or participate in makeup discussions.

Step 4: Midterm and Final Paper

- **Task:** Write a midterm and final paper that analyzes a major event or figure in the American Revolution, using both primary and secondary sources to support my arguments.
- **Criteria for Mastery:** I must score 85% or higher on both papers, demonstrating a strong grasp of historical research and writing skills.
- **Mastery Check:** My teacher will provide feedback on drafts before the final submission.
- **Opportunities for Revision:** If my draft doesn't meet the criteria, I'll receive feedback and be able to revise and resubmit until I reach mastery level.

Step 5: Final Exam and Presentation

- **Task:** Complete the final exam covering key events, figures, and causes of the American Revolution, and deliver a presentation summarizing my research findings.
- **Criteria for Mastery:** I must score 85% or higher on both the exam and presentation.
- **Mastery Check:** My teacher will assess both the exam and presentation, offering feedback.
- **Opportunities for Revision:** I'll receive feedback on my presentation and, if necessary, have the chance to improve it before delivering it to the class. If I struggle with the exam, I can review key concepts and retake portions of it.

Supporting Process

Tracking and Feedback

4th Grade Math – Fractions

- **Tools for Tracking:** I will use a Google Sheets mastery tracker that lists each student's progress on adding and subtracting fractions. The sheet will be updated weekly based on formative assessments like exit tickets and quizzes.
- **Feedback:** Feedback will be provided after each formative assessment via a digital tool like Google Classroom, with written comments focusing on specific skills that need improvement. Feedback will also be discussed during 1:1 student check-ins.
- **Parent Communication:** Monthly progress reports will be sent to parents via email, highlighting strengths and areas for growth. I will also hold a quarterly parent-teacher conference to discuss each student's mastery path and how they're progressing through the standards.

High School Biology – Genetics Unit

- **Tools for Tracking:** I will track student progress through a digital platform (like Canvas or an LMS) that allows students to see their mastery of individual concepts (e.g., Punnett squares, mutations). Students will also have a personal mastery chart where they mark off mastered concepts.
- **Feedback:** Students will receive verbal feedback during lab sessions and written feedback on lab reports and quizzes. In addition, I'll host weekly reflection sessions where students analyze their own progress and identify concepts they need to revisit.
- **Parent Communication:** Weekly updates will be provided through the LMS, allowing parents to see their child's progress in real time. I will send personalized emails for students who are falling behind to ensure parents are informed about how they can support learning at home.

Tailoring Support

2nd Grade Reading – Identifying Main Ideas

- **Differentiated Instruction:** I will create three levels of reading groups: one for students still working on decoding words, one for students working on fluency, and one for advanced readers focusing on analyzing texts. Each group will have differentiated text complexity and guided questions.
- **Pacing:** I will allow advanced readers to move ahead at their own pace by providing extra independent reading assignments with reflection activities. Struggling readers will work in smaller groups with me for additional support, and I'll provide extra practice through phonics games.

- **Support Systems:** Students needing additional help will have access to daily 1:1 reading sessions. For advanced students, I'll introduce enrichment projects, such as creating book reports or leading small group discussions.

9th Grade World History – Ancient Civilizations

- **Differentiated Instruction:** For students struggling with content, I will provide scaffolding through graphic organizers and additional readings that break down complex historical texts. For students ready for a challenge, I'll offer them independent research projects on specific civilizations.
- **Pacing:** Struggling students will be given extended deadlines for essays, along with extra review sessions. Advanced learners can preview and engage with selected resources from the next unit, such as primary documents or introductory videos, to foster curiosity and readiness for upcoming topics.
- **Support Systems:** For students needing extra help, I will hold twice-weekly study groups. Advanced learners can attend optional enrichment seminars, where we'll dive into topics not covered in the general curriculum.

Fostering Motivation and Agency

5th Grade Science – Ecosystems Unit

- **Student Goal Setting:** At the beginning of the unit, students will set their own mastery goals using a simple goal-setting template. They will revisit these goals at the end of each week to reflect on their progress and adjust their goals if needed.
- **Opportunities for Agency:** Students will be given a choice of how they demonstrate their mastery at the end of the unit: they can create a diorama, write a report, or give a presentation on a specific ecosystem.
- **Engagement Strategies:** I will incorporate hands-on activities like building a classroom terrarium to model ecosystems. Throughout the unit, students will work in teams to research different ecosystems and present their findings to the class. I'll also include a peer feedback session, where students assess each other's progress toward mastery.

10th Grade English – Literary Analysis Unit

- **Student Goal Setting:** Students will create a personal timeline for writing their final literary analysis essay. I will check in weekly to ensure they are hitting their self-set milestones. They'll also reflect on the feedback they've received and set goals for revising their drafts.
- **Opportunities for Agency:** I'll allow students to choose the novel they want to analyze for their essay, giving them options based on different genres and authors. They will also have the opportunity to choose how they present their analysis (written essay, video, or podcast).

- **Engagement Strategies:** I will include regular Socratic seminars where students debate themes, character motivations, and key symbols in their chosen novels. These seminars will provide a platform for deeper engagement and peer collaboration.