Expert Practice for Classrooms: Overview

Character LAB

GRIT

What is Expert Practice?

It's often assumed that world-class performers have a gift or talent the rest of us lack. Experts do share something that sets them apart, but it's not just "natural ability"—it's ability they developed through a special type of practice.

Expert Practice has three steps that maximize learning. First, a student and teacher identify a specific *sub-skill* that incrementally challenges the student. Second, the student *practices* that skill with full effort. Third, the teacher gives *feedback*.

By repeating this cycle, students will learn to replace "going through the motions" with the kind of purposeful effort that leads to true learning.

Why is it effective?

One of the insights of Expert Practice is that students need to be pushed *just a little beyond* their comfort zone. Expert Practice does this systematically. It guides those first tentative steps into unfamiliar terrain and supports students so they don't flounder. When teachers and students work together, student learning dramatically improves.

What's the science?

Professor Anders Ericsson is the world expert on world experts. By studying elite violinists, athletes, chess players, and more, he has revealed that what sets experts apart is not just the amount of practice—it's also the quality of their practice.

Who should use it?

Expert Practice has been designed for teachers, yet its three essential steps are applicable to any kind of practice, so it's equally suitable for coaches or tutors.

Expert Practice is effective for students at any level, whether they're first learning the basics or already advanced. It's the pathway toward becoming an expert in most any field.

When can I use it?

Even short bursts of Expert Practice can be more effective than hours of mindless repetition. In that sense, we envision Expert Practice not as an occasional addition to classroom practice but rather as a guiding paradigm for all instruction.

How long will it take to work?

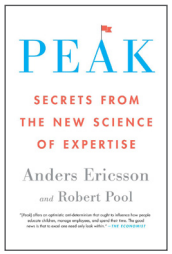
Because Expert Practice demands concentration on something students can't yet do, it can feel hard and, at times, frustrating. At first, expect as little as a few minutes a day of Expert Practice. Over time, students' capacity to practice like an expert will grow.

Resources:

LESSON PLAN & MATERIALS

CLASSROOM GUIDE

APPENDIX



PEAK
BY ANDERS ERICSSON

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Steps of Expert Practice

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GRIT EXPERT PRACTICE FOR CLASSROOMS

Lesson Plan & Materials

Questions about Expert Practice?
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LESSON PLAN

OBJECTIVES

- Students will be able to understand the components of Expert Practice and why it is more effective than rote practice
- Students will apply the ideas of Expert Practice to master skills

SEQUENCE

Advice for Maya.....6
5 MINUTES | WORKSHEET
Ask students to read and respond to Maya's situation before discussing their ideas.

Watch Overview Video
5 MINUTES | CHARACTERLAB.ORG/EXPERT-PRACTICE

Memory Game.....7
10 MINUTES | WORKSHEET
Use the memorization activity provided to help students experience Expert Practice. Teacher Instructions included.

I've Practiced.....9
10 MINUTES | WORKSHEET
Ask students to analyze the component skills of a master skill they know well, then of class skills.

Read *Grit*.....12
15 MINUTES | WORKSHEET
Ask students to read the story from Angela Duckworth's *Grit* and answer the questions that follow.

New Advice for Maya.....6
5 MINUTES | WORKSHEET
Revisit Maya's scenario to close out the session.

EXTENSIONS

This lesson will take approximately one class period. The lesson can be extended by doing the following:

- Ask students to write longer stories about their own previous improvements and goals, broken into sub-skills
- Ask students to think of an expert they aspire to be like and research how that expert used practice to improve
- Invite students to present these stories to each other
- Read the entire chapter on practice from *Grit* if you have a longer class block
- Use the STUDENT PRACTICE LOG (page 24) to chart ongoing progress

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ADVICE FOR MAYA

NAME _____

Imagine Maya is your teammate on the basketball team.
She wants your advice:

> *"I really want to make the varsity team this year. I know that I need to get better at free throws because I won't make varsity unless I make 60% of them. I've been practicing after school with my friends and at home on the weekends. I even force my older brother to play against me almost every day. But my free throw percentage seems to be staying the same, despite all the time I'm spending on basketball right now. I don't know... maybe free throws aren't my thing and I'll just never be good enough to make the varsity team."*

What would you tell Maya about how to improve?

Video CHARACTERLAB.ORG/EXPERT-PRACTICE

While watching the overview video, write down the three steps of Expert Practice:

1. _____

2. _____

3. _____

At the end of the lesson, answer the following:

What new advice would you give Maya now that you know more about Expert Practice?

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MEMORY GAME

NAME _____

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Instructions

Your teacher will write a sequence of numbers on the board. Then, the numbers will be erased and you will record as many numbers as you can remember in the spaces provided. For your answer to be correct, the numbers must be in the same order as they were written on the board.

FOLD FOLD

Round 1

TOTAL:

_____ *out of 10*

FOLD FOLD

Round 2

TOTAL:

_____ *out of 12*

FOLD FOLD

Round 3

TOTAL:

_____ *out of 14*

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MEMORY GAME

NAME *Teacher Instructions*

Character LAB

Instructions

Your teacher will write a sequence of numbers on the board. Then, the numbers will be erased and you will record as many numbers as you can remember in the spaces provided. For your answer to be correct, the numbers must be in the same order as they were written on the board.

FOLD FOLD

Round 1 — Silent study *9 4 8 5 0 6 1 4 9 2*

- *Write ten digits on the board*
- *Ask your students to try to memorize the digits in order*
- *Give them 5-10 seconds of silent study without writing*
- *Erase the digits and tell students to write what they remember on their worksheets*

FOLD FOLD

Round 2 — Self-directed practice *9 4 8 5 0 6 1 4 9 2* ***1 9***

- *Have students fold their sheet down to hide Round 1*
- *Post the same digits again and ask students to check their work for the previous round and record their total*
- *Add two more digits to the sequence*
- *For another 5-10 seconds, allow students to whisper ideas to each other or experiment with different methods of memorization*
- *Erase the sequence and tell students to write what they remember*

FOLD FOLD

Round 3 — Expert practice *9 4 8 5 0 6 1 4 9 2 1 9* ***3 7***

- *Have students fold sheet down to hide Round 2*
- *Post the same digits as in Round 2. Have students record their total. Discuss methods they are using to memorize*
- *Add 2 more digits to the sequence*
- *Teach them that they can:*
  - *A) Group numbers into chunks and memorize each small part (9485→ 94, 85)*
  - *B) Recognize significant numbers in the set by attaching a meaning to it (birthdays, jersey numbers, years, i.e. 1492)*
- *After 5-10 seconds, erase the sequence and tell students to write what they remember*
- *Later, say the sequence aloud so they can record their total*
- *Celebrate students' progressive practice. Fun fact: college students have memorized hundreds of numbers this way!*

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I'VE PRACTICED...

NAME _____

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Think about something you are very familiar with that requires practice, like a sport or an instrument. Then, think about someone who is a master in that field.

Skill I know well: _____

Master in this field: _____

Sub-skills:

What are all the sub-skills this person had to practice before they were considered a master?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Now think about this class. What's a skill in this class you'd like to get better at?

Class skill: _____

Sub-skills:

What are all the sub-skills you'll have to practice before you are considered a master at this class skill?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

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I'VE PRACTICED...

Student Example

Think about something you are very familiar with that requires practice, like a sport or an instrument. Then, think about someone who is a master in that field.

Skill I know well: Soccer

Master in this field: Pelé

Sub-skills:

What are all the sub-skills this person had to practice before they were considered a master?

Passing
-locking ankle
-point toe up

Defending
-watching ball
- contain instead of diving in

Heading ball
-eyes open
-make contact with ball

Dribbling
-all four surfaces of foot

Now think about this class. What's a skill in this class you'd like to get better at?

Class skill: Writing

Sub-skills:

What are all the sub-skills you'll have to practice before you are considered a master at this class skill?

Claims
-specific, complex, relevant

Evidence
-thorough
- precision in selecting range of sources

Style
-voice
-word choice for purpose

-Conventions
-subject/verb agreement
-pronouns

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I'VE PRACTICED...

Think about something requiring practice that you are very familiar with, like a sport or an instrument. Then, think about someone who is a master in that field.

Skill I know well: Yoga

Who is a master in this field? Justicia

Sub-skills:
What are all the sub-skills you or this person had to practice before they were considered a master?

Alignment
-shoulders, hips, ribs
Balance poses
-crow, side crow, side plank
Breathing
-ujjayi
-sithali
Inversions
-headstand
-forearm balance
-off of wall
Back bends
-Bridge, wheel, bow
Binds

Teacher Example

We recommend you complete and share your own experiences in Expert Practice with your students!

Now think about this class. What's a skill in this class you'd like to get better at?

Class skill: Clear presentation of content

Sub-skills:
What are all the sub-skills you'll have to practice before you are considered a master at this class skill?

Economy of language
- scripted directions
- post directions
- pause between sentences
Structure notes
- use questions as signposts
Presence/posture
- not fidgeting or pacing
- stand tall; right spot
Modulate tone
- clarify conversational tone vs. instruction vs. correction

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READ *GRIT*

NAME _____

Read the following story about Angela Duckworth, who researches how people get better at things. Note what she learned about practice.

The really crucial insight of Anders Ericsson's research, though, is *not* that experts log more hours of practice. Rather, it's that experts practice *differently*. Unlike most of us, experts are logging thousands upon thousands of hours of what Ericsson calls *deliberate practice.*

I suspected Ericsson could provide answers as to why, if practice is so important, experience doesn't always lead to excellence. So I decided to ask him about it, using myself as a prime example.

"Look, Professor Ericsson, I've been jogging about an hour a day, several days a week, since I was eighteen. And I'm not a second faster than I ever was. I've run for thousands of hours, and it doesn't look like I'm anywhere close to making the Olympics."

"That's interesting," he replied. "May I ask you a few questions?"

"Sure."

"Do you have a specific goal for your training?"

"To be healthy? To fit into my jeans?"

"Ah, yes. But when you go for a run, do you have a target in terms of the pace you'd like to keep? Or a distance goal? In other words, is there a *specific* aspect of your running you're trying to improve?"

"Um, no. I guess not."

Then he asked what I thought about while I was running.

"Oh, you know, I listen to NPR. Sometimes I think about the things I need to get done that day. I might plan what to make for dinner." Then he verified that I wasn't keeping track of my runs in any systematic way. No diary of my pace, or my distance, or the routes I took, my ending heart rate, or how many intervals I'd sprinted instead of jogged. Why would I need to do that? There was no variety to my routine. Every run was like the last.

Grit is published by Scribner, a Division of Simon & Schuster.

"I assume you don't have a coach?"

I laughed.

"Ah," he purred. "I think I understand. You aren't improving because you're not doing deliberate practice."

This is how experts practice:

First, they set a stretch goal, zeroing in on just one narrow aspect of their overall performance. Rather than focus on what they already do well, experts strive to improve specific weaknesses. They intentionally seek out challenges they can't yet meet. Olympic gold medal swimmer Rowdy Gaines, for example, said, "At every practice, I would try to beat myself. If my coach gave me ten 100s one day and asked me to hold 1:15, then the next day when he gave me ten 100s, I'd try to hold 1:14." Virtuoso violist Roberto Díaz describes "working to find your Achilles' heel—the specific aspect of the music that needs problem solving."

Then, with undivided attention and great effort, experts strive to reach their stretch goal.

And ... then what? What follows mastery of a stretch goal?

Experts start all over again with a new stretch goal. One by one, these subtle refinements add up to dazzling mastery.

Discuss or answer on a separate sheet:

1. Why was Angela's running not improving, despite her frequent practice?
2. How do experts choose the stretch goal (sub-skill) they will work on next?
3. How can it be possible that less practice time could lead to faster growth than more practice time? Be specific.
4. **Grit** is passion and perseverance towards long-term goals. How does this type of practice relate to grit?

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GRIT EXPERT PRACTICE FOR CLASSROOMS

Classroom Guide

Once you've introduced Expert Practice to your students with the Lesson Plan, use this guide to create the best conditions for ongoing Expert Practice in the classroom.

Questions about Expert Practice?
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WHAT DOES IT LOOK LIKE IN MY CLASSROOM?

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World History, 10th grade

WORKING ON: Answering complex historical questions using sources[1]

> Written responses require analyzing sources, developing a clear thesis, finding supporting evidence, and explaining reasoning.[1] Those skills break down even more—working on thesis statements might require increasing clarity or complexity.[1] We write an extended response each Thursday and when I return students' graded work on Monday, I give them a focus sub-skill for the week.[2] They practice that sub-skill in their daily in-class writing, and I give them feedback just on that point.[3,4] If a student is working on developing more complexity in claims—for example, analyzing the differing impacts of industrialization based on class and gender, rather than evaluating industrialization's social impacts over all—then I check for relevant annotations.[5] Over time, as they add more skills to their toolkit, students talk about their writing with more precision and get better at reviewing each others' writing."[6]

Algebra I, 8th grade

WORKING ON: Students integrating skills in synthesis tasks[1]

> Our first major unit is a wide-ranging exploration of functions. We build up complexity over the course of the unit from reviewing the basic features of functions up through comparing linear functions.[2] Most students move through the early content easily, but some don't. It's important that I know the progression of the unit so that I can anticipate misconceptions that might happen based on struggles with underlying skills. After practicing skills in sequence, students complete tasks that require integrating skills. During these tasks, student practice and my feedback are incredibly differentiated.[3,4] I know exactly what I want each student to get out of the task and know the feedback I can give to focus their energy on the most important practice.[5] At the end of the unit, students approach problems using a deep understanding of what functions are, not just memorized steps."[6]

Environmental Science, 11th grade

WORKING ON: Students using project-based learning

> When we start a project, I teach the rubric by asking students to score exemplars from past years.[1] As groups work, I conference with them to point out which parts of the rubic they're achieving and which they still have to work on.[2] A group might struggle with analyzing their data from prototyping filtration systems—I have them think aloud about how they approach the analysis and then have them practice a specific piece, like setting up comparison tables.[3,4] We talk a lot during that practice about why they are making decisions, like which measurements are most significant, and I share how I approach those decisions.[5] This cycle not only makes their final products stronger but also develops skills that transfer to their next project. The thinking they did to select the most significant data in analyzing filtration systems prepares them to make similar decisions in a later project analyzing changes in a food web."[6]

English and Language Arts, 7th grade

WORKING ON: Students close reading texts independently

> Students come to me with different experience and skill levels. Some students annotate and reread nearly automatically while others are still getting the hang of "talking to themselves" while reading and not just decoding.[1] So I have students work on different sub-skills during close reading. Some might spend more time on comprehension and analyzing basic text features, while others spend more time analyzing the effect of nuanced word choice or unreliable narrators.[2] Sometimes, especially for more obscure texts, like a really old speech, I have everyone focus on the same sub-skills that help with archaic language.[3, 4] I focus feedback on the question where I know each student is most likely to first start struggling, like missing figurative language.[5] I see kids getting further and further on their own as they get the hang of each stage in the close-reading process."[6]

Expert Practice Essentials: *Find these features in each example*

1. Clarify the course objectives students will reach
2. Identify sub-skills that need improvement
3. Isolate sub-skills in practice
4. Create 100% focus
5. Give feedback
6. Help students develop mental models of how to approach work in the domain

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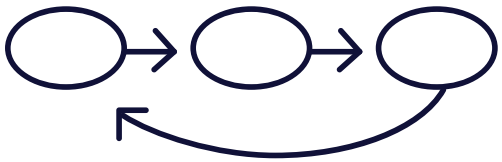
SET UP PRACTICE

In Expert Practice, teachers and students share an understanding that there are big objectives in the class that will be achieved by breaking those objectives down into sub-skills. You will take steps to teach students what they are working toward and why it matters.



CRITERIA FOR SUCCESS

Teachers and students share an understanding that...

- We are going to accomplish important and challenging course goals in this class
- Accomplishing those goals will require time and hard work on sub-skills
- Everyone in the class can and will accomplish these skills through Expert Practice and feedback
- Feedback, coaching and practice is to ensure the success of all students in the class

ACTION STEPS

- ☐ Map out the important **CLASS SKILLS** (page 21) of your course. These are the big goals of your class broken into the sub-skills, with the pitfalls and feedback for each, so it's easy for you to refer to later
- ☐ Share the **CLASS SKILLS CHART** with your students. They've already completed the **I'VE PRACTICED...** activity from the Lesson Plan. Could they list most of the important skills you've identified?
- ☐ Have students share their **I'VE PRACTICED...** stories with the class. Create a classroom bulletin board of goals students have already reached through practice
- ☐ Optional: Use the **BUILD CONNECTIONS PLAYBOOK** after each unit to increase student curiosity and investment in course content, or other activities and routines to make your content relevant to their lives

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IDENTIFY SUB-SKILLS

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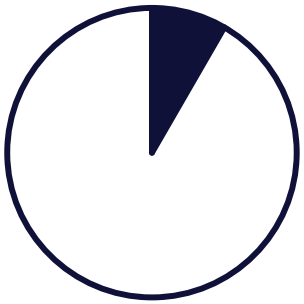
Experts working towards long-term growth identify sub-skills just beyond their current skill level. You will identify sub-skills for students to work on by looking at their current performance and the target you are working toward before determining the next tiny step that will move them forward.



CRITERIA FOR SUCCESS

TEACHERS...

- Use data from past performance to identify sub-skills, for individuals or groups, that are the next small things needed for their growth
- Design practice activities that allow students to practice their sub-skill(s)
- Clearly communicate exactly what sub-skill each student will work on, how to practice it, and how students can see progress
- Share with students what their self-talk should be as they practice

STUDENTS...

- Understand what sub-skill they will practice as well as how they will practice and see improvement
- Understand how the sub-skill they are working toward is related to larger course objectives
- Ask questions as needed to understand the purpose of their practice
- Can articulate how the sub-skill they are practicing relates to course objectives

ACTION STEPS

- ☐ Break down skills identified in unit plans into sequential sub-skills
- ☐ Identify or create exemplars to reference in lessons
- ☐ Have students use a PRACTICE LOG each day to record the sub-skill they are working on
- ☐ Create a CLASS SKILLS TRACKER and monitor students for observable evidence of mastery. Move them along the tracker over time to help them visualize their progress

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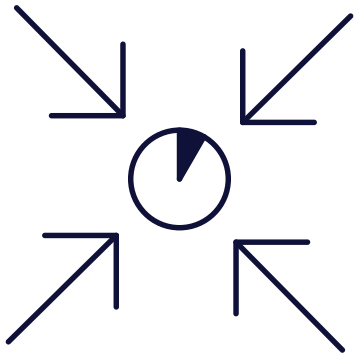
CULTIVATE FOCUS

Experts practice with total concentration. When using Expert Practice, start with short sessions of total focus, and build them in length over time.

Teachers can use the time they give students for independent practice as Expert Practice time—it doesn't need to be an additional activity. In most cases, it is silent, individual practice.



CRITERIA FOR SUCCESS

TEACHERS...

- Time practice appropriately based on age and skill level
- Increase the length of practice sessions over time. Start with as few as 15 minutes and work toward a maximum of 45 minutes of intense focus
- Model, teach, and coach focus as a skill
- Recognize that focused practice is tiring and follow practice sessions with rest or fun

STUDENTS...

- Commit to working with total focus to the best of their abilities
- Work through momentary frustration and confusion during practice
- Consciously use the strategies their teacher provides to maximize their focus

ACTION STEPS

- ☐ Script expectations for practice time in student friendly language that you can use every time students practice. *"It's time for Expert Practice..."*
- ☐ Solicit suggestions from students of how they help themselves focus, such as putting away their phones. Save suggestions on a chart for reference
- ☐ Develop routines for quick ways to re-energize the class after intense practice. Consider using free dance, funny videos, or physical activities like jumping jacks
- ☐ Track publicly how long students are able to focus so they can see improvement over time
- ☐ Conference with students who struggle with focus to co-create plans to increase their focus over time
- ☐ Optional: Have students move to different seats/spaces in the room to create a bright line between Expert Practice and general instruction

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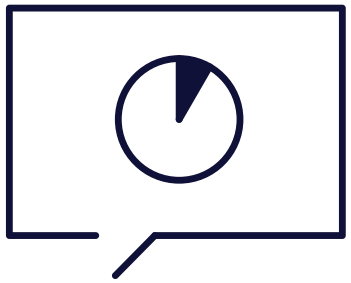
GIVE GOOD FEEDBACK

Feedback helps students ensure their performance is on track. Use feedback to maximize the amount of time they are practicing the sub-skill correctly.



CRITERIA FOR SUCCESS

TEACHERS...

- Quickly note errors in student work and ask questions to probe what misconception produced the error
- During every session, give feedback on the sub-skill that is specific, positive, and actionable
- Use think-alouds to model for students how to think through a prompt or problem
- Create systems that allow for quick and specific formative feedback

STUDENTS...

- Perceive practice as difficult but achievable and see feedback as something that helps them grow
- Can talk through problems when struggling to get ideas about how to adjust their thinking
- Use feedback given during practice to improve performance
- Incorporate feedback from one session into work going forward

ACTION STEPS

- [ ] Complete the student work yourself first before class and keep your copy with you while circulating. Feedback is faster and more specific when you've done the work yourself
- [ ] Anticipate likely errors before practice and plan your response when you see them in the CLASS SKILLS CHART
- [ ] Focus feedback on the sub-skill *only*. Resist the temptation to correct multiple issues in student work. Just coach students toward mastering their target for the day
- [ ] Each time you look at student work, probe how they used the last feedback you gave
- [ ] Circulate intentionally. Focus on different sub-skills in a logical order to maximize the impact of feedback

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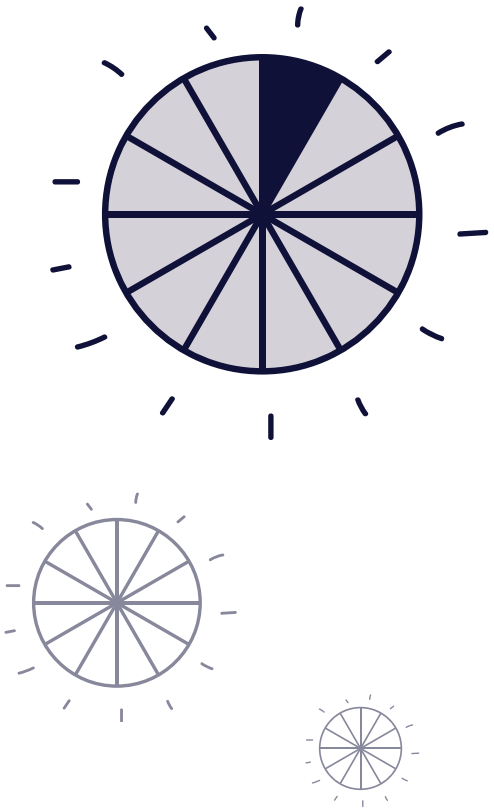
BUILD MENTAL MODELS

Over time, as experts practice, they develop a mental model of what excellent performance looks like.



CRITERIA FOR SUCCESS

You can tell that students are developing their mental model when they can more easily and accurately:

- Analyze their own performance and suggest areas for improvement
- Explain their approach and solution to a problem or prompt
- Identify nuanced features of a mastery example and describe them with precision
- Distinguish not only between good and bad performance, but also between good and great performance
- Talk through a problem or prompt using the vocabulary of the discipline and the methods that experts in the discipline use
- Relate their sub-skill practice to longer-term course objectives

ACTION STEPS

- [ ] Introduce new skills through exemplars and non-exemplars. Guide students through the improvement of the non-exemplar, emphasizing the process of incorporating specific features from the exemplar
- [ ] Revisit the same exemplars periodically and each time push students to note new features of the work that make it an exemplar
- [ ] Co-create anchor charts with important, overriding concepts and rules of the discipline and hang them for reference. Alternatively, guide students in creating their own similar reference sheet in their notebook
- [ ] Consistently reserve time for reflection and making meaning
- [ ] Periodically celebrate student progress and name how students are developing through practice

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COACH YOURSELF

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Once you've laid the foundations for Expert Practice, use this checklist to set up your lesson plan before Expert Practice and evaluate execution after. Your execution will improve over time; use this to identify what you want to work on next.

IN EVERY LESSON, I WILL:

- ☐ Describe the specific sub-skill(s) I want students to master. *Based on level, students might work on different sub-skills*
- ☐ Determine how I will communicate to each student their sub-skill for the day
- ☐ Create experiences (problem sets, revision exercises, stand and deliver, etc.) that isolate the sub-skill targeted in this lesson
- ☐ Anticipate the likely errors students will make during practice and plan responses to those errors
- ☐ Identify the moments in the lesson when I will deliver feedback to students or groups of students
- ☐ Reserve time for student reflection after practice

AFTER EACH LESSON, I CAN MEASURE MY EFFICACY:

_____ x _____ total students — Understood their goals for practice

_____ x _____ total students — Practiced in a way that was 100% focused

_____ x _____ total students — Were able to persist past frustration in the practice

_____ x _____ total students — Received individual feedback during or just after the practice

_____ x _____ total students — Engaged in reflection and planning for the next round of practice

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GRIT EXPERT PRACTICE FOR CLASSROOMS

Appendix

Questions about Expert Practice?
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CLASS SKILLS CHART

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List the main skills in your class with the sub-skills to practice in each unit. List the common mistakes students might make, and the feedback you can give them when they do.

Sub-skills	Common mistakes	Specific feedback
Skill:		
Skill:		
Skill:		

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CLASS SKILLS CHART Teacher Example

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List the main skills in your class with the sub-skills to practice in each unit. List the common mistakes students might make, and the feedback you can give them when they do.

Sub-skills	Common mistakes	Specific feedback
Skill: Plan investigations into scientific phenomenon		
- formulate a clear question	- question cannot be investigated; no clear hypothesis; missing explanatory model	-"How would you prove that?"; direct to the criteria for a hypothesis; remind them to reference model
- determine data for collection	- missing data needed to prove causation; not accounting for instrument precision	-"Will that prove cause? How?"; "Are you measuring all elements of the model?"; model how to check precision
Skill: Incorporate accurate and meaningful evidence from secondary sources		
- classify types of secondary sources	- editorials versus news analysis; distinguishing between different types of maps and graphs	- redirect to reference sheet; have student think aloud about how they are reading title, axes, key
- selecting most relevant evidence	- classifying viewpoints; selecting a range of viewpoints	- model creating table to sort sources; "how are these viewpoints different?"
Skill: Listening to others during discussions		
- summarize speakers main points	- hearing but not actively processing; not tracking in notes	- prompt students to be processing BEFORE each speaker; use nonverbal cues to prompt note taking
- ask helpful questions of others	- focus on making your point instead of understanding theirs	-"What more do you want to know about their point?"

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CLASS SKILL TRACKER

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Create a chart like this to track skill progression in your class. Draw it on a whiteboard, on poster paper, or however else you like—make it your own!

Sub-skills	Student																	

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PRACTICE LOG

NAME _____

Sub-skill I'm working on:

How was my practice? Was it 100% focused?

What was the feedback?

Am I ready to move on, or should I practice this same sub-skill again?

☐ Ready to move on!

☐ Practice again

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