

Second Edition

# HACKING ASSESSMENT

10 Ways to Go Gradeless in a  
Traditional Grades School

OVER  
**100**  
ALL-NEW  
STRATEGIES  
AND  
RESOURCES



STARR  
SACKSTEIN

# Transforming STEM Assessment Practices: Beyond Traditional Grades Learner-Centered Assessment in STEM

Starr Sackstein  
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Fall 2025



Kaasrahanud  
Euroopa Liit



Eesti  
tuleviku heaks

# Welcome and Introductions

## Starr Sackstein

- Author
- Assessment Nerd
- Instructional Coach
- Assessment Coach
- Chief Operating Officer
- Kappan Columnist - Career Confidential
- MA State Coordinator for Ed Rising
- PDK Distinguished Educator Fellow 2024
- Former HS English & Journalism Teacher
- Former K-12 Humanities Director
- Mother of a college student
- Passionate Changemaker
- Outdoor Enthusiast
- Animal lover





## Let's Warm Up!

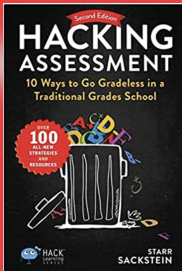
If you weren't  
here yesterday,  
what is your  
biggest  
assessment  
challenge?

Think of the last time you  
gave someone constructive  
feedback. Apply what you  
learned yesterday in a  
reflection about what you  
did that aligned and what  
constructive feedback  
**would** you give yourself?

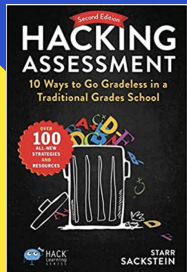
# Learning Targets

Participants will:

- Examine the limitations of traditional assessment methods in STEM and the need for change
- Use learner-centered tools like portfolios and conferences to enhance learning.
- Discuss strategies for integrating language and reflection into assessment practices
- Design personalized assessment frameworks that align with Learning Center Goals
- Collaborate on ways to empower learners as active participants in the assessment process.



# Let's Co-Construct Success Criteria



## What do you hope to get out of this session?

- New methods to build up our current models of learning
- To share each other's assessment practices and challenges
- Practical tool kit for learning-centered practices
- AI in assessment
- Better understanding of how to help students in groups instead of individually
- Conferencing practices
- Smaller/bigger groups in the same space (feedback/assessment)

# Modified Four Corners Activity

## Directions:

- A statement will post about your beliefs around assessment
- You will determine if you strongly agree or disagree
- You will move to the area of the room designated for that response.
- Be prepared to discuss why you went where you did.

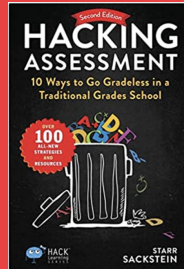
**Agree**

**Disagree**

Topic to debate is dropped and students move to the sector of the room that suits their opinion on the topic. They must be ready to explain why when they do.

**Strongly  
Agree**

**Strongly  
Disagree**





# Students need Grades to be motivated to learn to STEM.

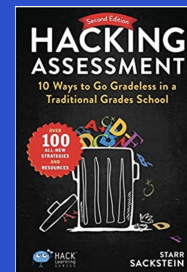
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**Strongly  
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**Strongly  
Disagree**





# Grades accurately communicate student achievement in STEM

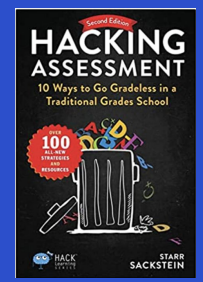
**Agree**

**Disagree**

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**Strongly Agree**

**Strongly Disagree**



# All STEM learning should be graded.

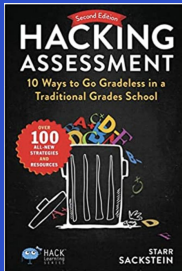
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Disagree**



**Agree**

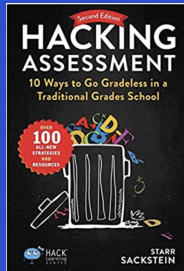
**Disagree**

Topic to debate is dropped and students move to the sector of the room that suits their opinion on the topic. They must be ready to explain why when they do.

**Strongly  
Agree**

**Strongly  
Disagree**

**Late work  
should be  
penalized in  
STEM.**



# Project-based learning is a suitable replacement in STEM for summative testing.

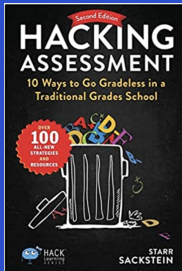
**Agree**

**Disagree**

Topic to debate is dropped and students move to the sector of the room that suits their opinion on the topic. They must be ready to explain why when they do.

**Strongly Agree**

**Strongly Disagree**





# Self-Assessment is a reliable and acceptable means to a assess in STEM.

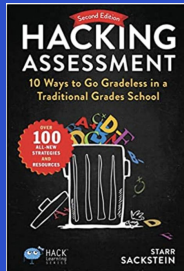
**Agree**

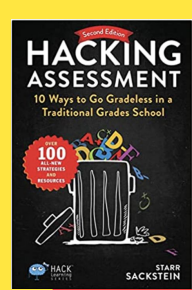
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**Strongly  
Agree**

**Strongly  
Disagree**





# 4 Corners debrief and discussion

01

**What are your key takeaways?**

With a partner, discuss specific statements that challenged your thinking

02

**Have you changed your mind on any topic after our discussion?**

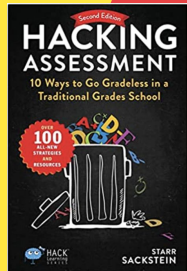
Share areas that have challenged your thinking.

03

**What do you need to know more about?**

Come up with questions and/or statement about where you need additional support to change your practice

# How do we begin to shift these practices?



What do you agree with?  
What challenges your thinking and why?  
Let's discuss after we watch

# Creating Structures for Learner-Led Spaces



## Build Relationships

Everything we do is better when we build a culture of belonging



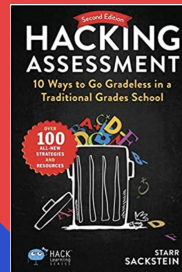
## Offer Choice

After we teach students to make effective choices, we need to let them choose.



## Provide authentic opportunities for student voice

Classroom learning is about our students, so they should have a say in what, how and when they are learning.



# Understanding the Formative Assessment Process in STEM



## Develop clarity

Using learning targets and success criteria (co-constructed success criteria where possible.)



## Set goals

Students take feedback from earlier learning and set specific goals that align with targets.



## Learning Opportunities

Teachers provide practice opportunities as well as instruction where needed to support student growth



## Feedback

Students receive feedback from teachers and peers



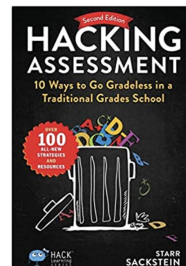
## Revision and iteration

Students apply feedback and reflect on their learning



## Self-Assess

Students have the opportunity to self-assess against criteria. Determine if a new goal is needed.



## Formative Assessment Definition



Formative assessment is a planned, ongoing process used by all students and teachers during learning and teaching to elicit and use evidence of student learning to improve student understanding of intended disciplinary learning outcomes, and support students to become more self-directed learners.

This definition was created by the **Council of Chief State School Officers (CCSSO)** through the Formative Assessment for Students and Teachers State Collaborative on Assessment and Student Standards (FAST SCASS).



The Formative Assessment Process and how it applies to project-based learning in STEM.

This image was taken from Getting Smart

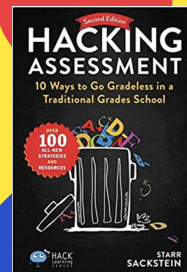
# Formative assessment is key to student achievement



- It is more about the process than the product.
- It builds clarity and practice into every day work.
- It relies on feedback and student goal setting and reflection.
- It provides multiple opportunities to learn and show learning while iterating.
- It meets every learner where they are and allows them to progress based on their own needs.

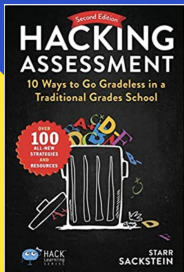


What do these strategies and paradigms look like in practice?



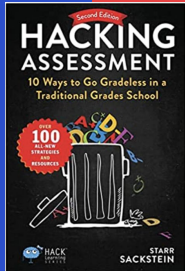
**We give time in our  
spaces to the things  
what we value most.**

What does your time suggest you value  
most?



# Developing Student Agency and Advocacy

Using portfolio and student-led conferences as means to include students in the assessment process.



# The Power of Student Agency



Before students explore and understand the formative assessment process, you all need to be on the same page about what it is.



The sheer act of writing down goals is

**POWERFUL** 

It's NOT ENOUGH JUST TO SAY WE WANT TO ACCOMPLISH SOMETHING; WE MUST FORMALLY PRESENT OUR GOALS IN WRITING.



Student-created goals provide you with a framework for generating a personalized learning plan **for each student.**

1- Using FORMATIVE Assessment to Promote Learner Voice and Self-Advocacy

3

@mssackstein

Peer engagement allows students to actively practice the skills and knowledge they need to master.

It is an opportunity to get more ideas about what that learning can look like in an authentic way.



Seeing is believing,

...which is why portfolios are such a powerful way to track growth.

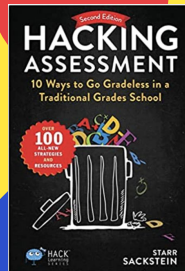


GOAL SETTING AND METACOGNITION ARE POTENT TOOLS THAT ALLOW STUDENTS TO PARTICIPATE ACTIVELY IN THEIR LEARNING.

Our classrooms must mimic lifelong learning expectations that feed on error-analysis, reflection, revision, and learning iteration.



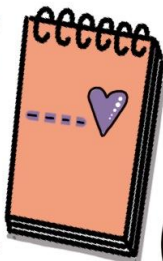
**How well do these students share their learning? What about their advocacy for STEM education?**



# What stands out to you and why?

At the heart of our students' successes is our knowledge of them as human beings and learners.

@mssackstein



Promoting high classroom expectations in a positive way is essential



"all kids can"

DEVELOPING a CULTURE of LEARNING is ALL ABOUT HONORING the

DIGNITY of STUDENTS and EXPLORING WHO THEY ARE & WHERE THEY COME FROM



elevating learners in our environments to truly own their learning is the **first step** to helping them connect with themselves...

PART 1

BUILDING STRUCTURES to PROMOTE LEARNER AGENCY

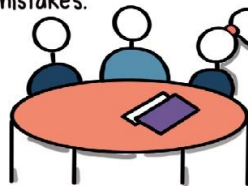
Developing a positive learning atmosphere in our schools means being defiant in the face of our discomfort...

Establish a Culture of Learning Approach every student with real interest and warmth...



- Stand at door and welcome every single child.
- Always assume positive intent.
- Transparently correct your own mistakes.

- Create and post anchor charts for important ideas and leave them up.
- Be mindful of the energy your space creates.



Progress isn't always easy to see

PORTFOLIOS CAN EMPOWER STUDENTS TO SET AND TRACK GOALS AND PROMOTE CONTINUOUS GROWTH AT A PACE UNIQUE TO EVERY CHILD.

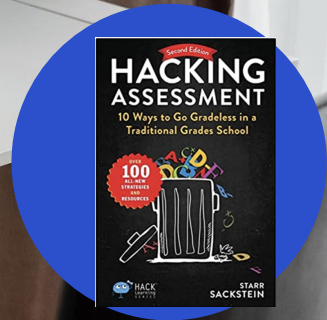
@woodard\_julie



1- Building a Learner Agency-Enhanced Environment

1

# Building Stakeholder Buy-in



# Making the Language of Learning Visible to students

1- Promoting Clarity to Deepen Student Understanding

2

Teacher clarity is essential to achieving student clarity...



...that new teams can explore and revise over time.

...create student-friendly, short, active statements that provide a clear lens through which to explore a small aspect of the curriculum...



Learning progressions give students the tools they need to understand...building their self-efficacy.



**TO ACHIEVE THE OPTIMAL LEARNING EXPERIENCE, STUDENTS NEED TO KNOW**

**WHAT SUCCESS LOOKS LIKE.**



**Feedback** SHOULD COME FROM THE STUDENTS AS WELL AS THE TEACHER.

@mssackstein



Clarity is an essential part of the learning process.

If you want your students to speak their learning in meaningful ways:

- align your learning experiences
- provide ample opportunities for students to practice what they learn.

@woodard\_julie

# Student-led Assessment models that promote growth

- What is a portfolio?
- How do we determine the purpose of a portfolio?
- Where do students collect their learning?
- How do they make choices about selected work?
- How do we incorporate student-led conferences?

STUDENTS WILL GENERATE PRODUCTS THAT PROVIDE AN ACCURATE PICTURE OF THEIR LEARNING AND THE EFFECTIVENESS OF CURRICULA.

We need to think of portfolios as "dynamic workspaces" rather than collections of finished work.

NOT ALL PORTFOLIOS ARE CREATED EQUAL...

- CAPSTONE
- ACHIEVEMENT SHOWCASE
- PROGRESS & GROWTH
- PROFESSIONAL
- ASSESSMENT
- HYBRID

It is essential to know your community so you can select the type of portfolio that will serve it best.

Students will need to express the end goal of their portfolio and then come up with specific checklist...

If educators genuinely want to know what students **know** and **can** do, they should have a **universal portfolio system** in place that allows students to gather **evidence of learning** over time. @mssackstein

1- Developing a Portfolio System that Supports Purposeful Goals 4

Learning is nuanced, and assessment should be, too.

Building a portfolio system takes time, and creating a handbook... may be 1 way to ensure consistency and professional learning for your staff.

@woodard\_julie

# STEM Portfolios



# How do we create an environment where STEM Learners can thrive?

- Partner with students in the learning process by co-creating expectations and assessments
- Build academic vocabulary capacity
- Use metacognition as a way to make student learning visible
- Provide ongoing feedback to ensure students can set goals that align with the necessary skills and content.
- Don't use grades as a means of ranking and sorting students, taking points off or adding points for compliance.
- Develop a portfolio system where student learning takes center stage.
- Nurture an environment that gives time to reviewing learning and revisions with peer and teacher feedback
- Personalize learning by allowing students voice & choice in the process, as well as flexibility in how they demonstrate learning
- Use student-led conferences as a way to give students agency in their learning

# Reflecting on the Process

Let's take a minute to reflect on our learning so far

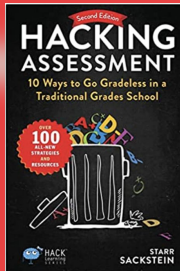
- What is one takeaway so far?
- Do you have any lingering questions before we dive into learning centers?



# Learning Targets

Participants will:

- Examine the limitations of traditional assessment methods in STEM and the need for change
- Use learner-centered tools like portfolios and conferences to enhance learning.
- Discuss strategies for integrating language and reflection into assessment practices
- **Design personalized assessment frameworks that align with Learning Center Goals**
- Collaborate on ways to empower learners as active participants in the assessment process.



# What are Learning Centers?

## Learning Centers - Teaching Strategy

Students explore interests while working self-directed activities

### Why Use Centers?

Cooperative Learning

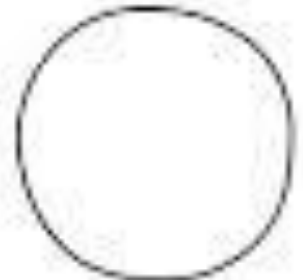


Fun for Kids

Skills Focused



Individual Pace



### How to Use Centers?

Title

Assigned Work  
Assessments also

Measure students academically

Learning Styles

Set Time

RULES & PROCEDURES

Materials provided for center

# How do we structure Learning Centers?

**What you can do tomorrow...**

- Determine the best configuration for learning.
- Establish multiple floor plans.
- Clean the clutter.
- Make a wish list.
- Get the custodian on your team.

*We recognize that we are all limited by the physical size and shape of our classrooms, but we need to envision how, within those four walls, we can open up minds and hearts for full engagement.*

*No matter what subject you teach, you can set up basic centers for overarching goals in each classroom.*

*...the more intentional we can be about the space, the more productive students are likely to be - and the more engaged.*

**2. Design the Physical Space**

*Design Spaces that Inspire Learning*

*Traditional classroom Spaces don't support engagement*

*@mssackstein*  
*@MrsKTerwilliger*

*@woodard\_julie*

**HACKING LEARNING CENTERS**

# STEM Learning Stations Examples

## Station 1: Computational Thinking & Coding Hub

**Focus:** Algorithm development and computational problem-solving

**Activities:**

- Students work through Python/Matlab coding challenges related to course concepts
- Debugging exercises with common computational errors
- Algorithm optimization tasks with complexity analysis
- Pair programming on engineering simulation problems

**Materials:** Laptops, coding challenges, reference sheets, timer for efficiency tracking



# Breaking Down Curriculum

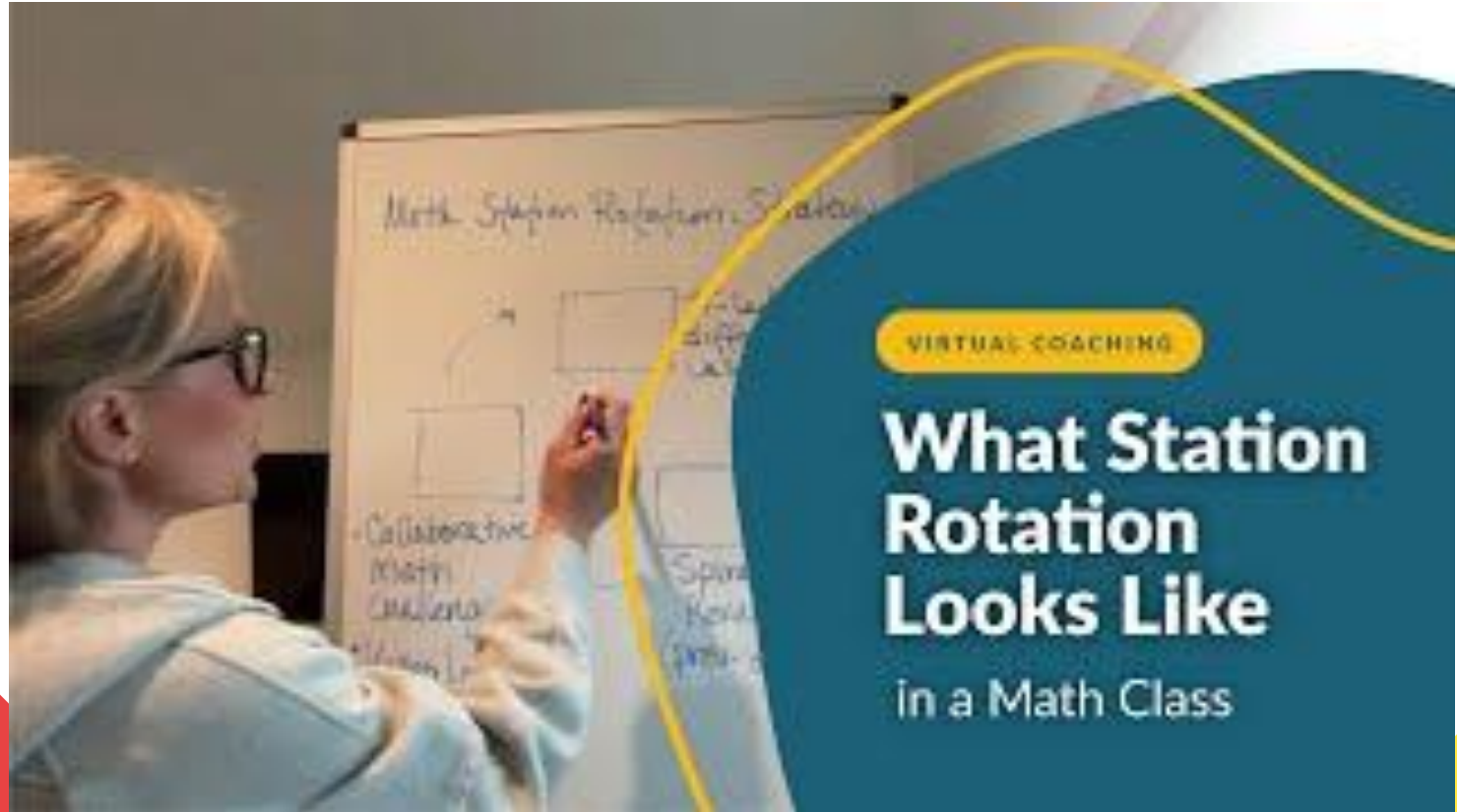
**What themes are you working on?**

**What skills do you need students to possess?**

**What materials do you have or need to accomplish goals?**

Repurpose what you have

# Station Rotations in Math



# Station Rotation Overview - Student-Facing



**Keep it simple & easy to read-use  
icons & simple directions**

1. Remember this is just a reminder of the mini-lesson (you will have introduced the center prior to the rotation)
2. If you feel students need more directions, post step by step directions within the center.

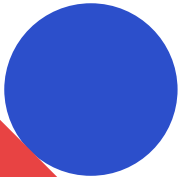
# Student Reflection

- Empowering student voice
- Assessing learning
- Providing feedback
- Promoting student agency
- Opening the lines of communication to create a dialogue with students



# Q and A

What lingering questions do you have?



# Thank you!

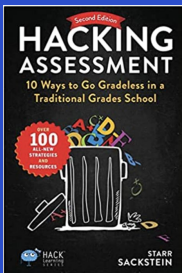
I hope to connect with all you  
soon.

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