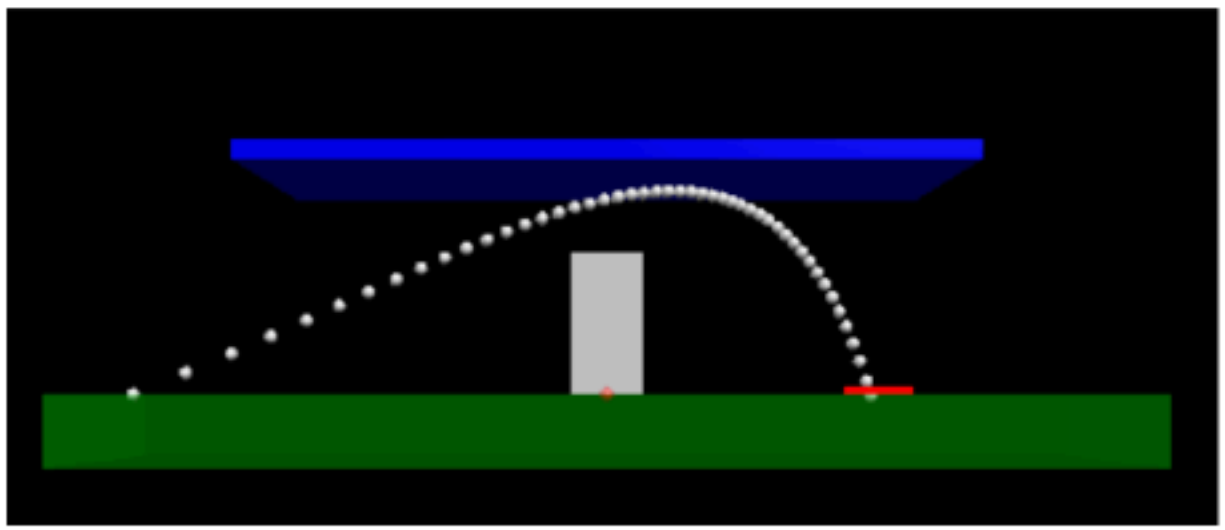
Marshmallow Launch



Activity Information

Learning Goals

- Create and modify a computational model to describe a given system
- Use Newton's second law to relate the acceleration of a marshmallow with the forces acting on it (HS-PS2-1)

Weeklong Summer Camp for High School Teachers

- Introduce computing
- Develop materials
- Grow community
- Focus on equity

Return to MSU (virtual during COVID)

- Addressing problems of practice
- Community building

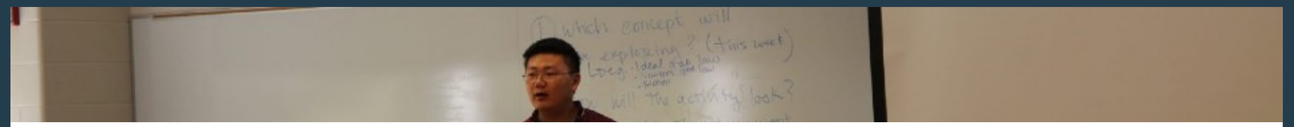
ICSAM Workshop

Many teacher-developed materials!

https://www.msuperl.org/wp/icsam/


NSF

ICSAM Workshop



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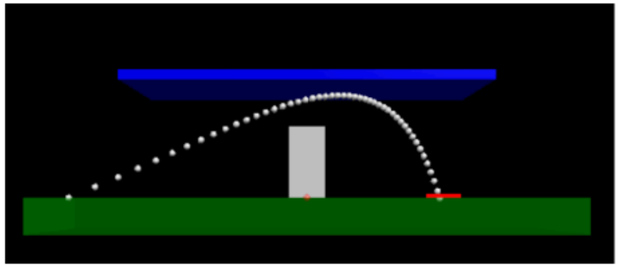

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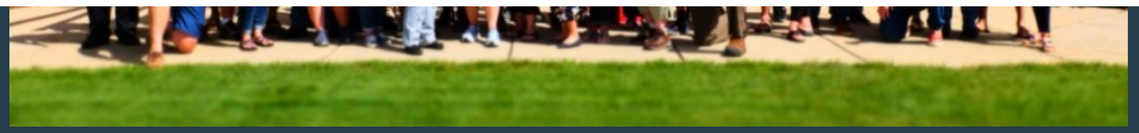

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ICSAM is also a research lab

PHYSICAL REVIEW PHYSICS EDUCATION RESEARCH **18,** 020109 (2022)

Editors' Suggestion

Students' perspectives on computational challenges in physics class

Patti C. Hamerski,[1] Daryl McPadden,[1] Marcos D. Caballero,[1,2] and Paul W. Irving[1]

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PHYSICAL REVIEW PHYSICS EDUCATION RESEARCH **18,** 020106 (2022)

Development and illustration of a framework for computational thinking practices in introductory physics

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Routledge
Taylor & Francis Group

Check for updates

Racial hierarchy and masculine space: Participatory in/equity in computational physics classrooms

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ABSTRACT

Background and Context: Computing is being integrated into a range of STEM disciplines. Still, computing remains inaccessible to many minoritized groups, especially girls and certain people of color. In this mixed methods study, we investigated racial and

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Tracking Inequity: An Actionable Approach to Addressing Inequities in Physics Classrooms

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Recent studies reveal people from marginalized groups (e.g., people of color and women) continue to earn physics degrees at alarmingly low rates.[1-3] This phenomenon is not surprising given reports of the continued perception of physics as a masculine space[4,5] and the discrimination faced by people of color and women within the field.[6-8] To realize the vision of an equitable physics education, fully open to and supportive of marginalized groups, teachers need ways of seeing equity as something that is concrete and actionable on an everyday basis. In our work, teachers have found value in intentionally reflecting on their instruction and their students explicitly in terms of race, gender, and other social markers. We find they are then better positioned to build equitable physics classrooms. Without a focus on specific social markers, common obstacles such as color-evasiveness emerge, which obstruct the pursuit of equity in classrooms.[9]

learners.[12,13] Therefore, we encourage teachers to consider past and contemporary forms of marginalization when determining standards of fairness. In other words, we recommend a "reparations-type" view when defining equity.

In this article, we present a three-step process involving a classroom observation tool called EQUIP (https://www.equip.ninja/), which teachers can use to identify and attenuate patterns of discourse inequity. We begin by describing EQUIP and how its design supports physics teachers in thinking about equity in terms of social marker patterns in [illegible] teaching and learning situations. Then, we illu[illegible] our partner teachers used EQUIP in actio[illegible] sought to build equitable spaces for collabo[illegible] computation-based high school physics.

EQUIP: Equity QUantified In Part[illegible]