Bold Organizer facilitates, *Italics Organizer* takes notes, EDI consultants ask clarifying questions/comment at the end of share out.

Share Out 1

Share Out 1: Groups 1,2,3 (with *Sara*, **Arielle**, Meseret)

Share Out 1: Groups 4,5 (with *Felicia*, Alexis, **Beth**, Briana)

Share Out 1: Groups 6,7,8 (with Farrah, **Juan**, *Mel*, ReAnna)

Share Out 2

Share Out 2: Groups 1,4,6 (with Felicia, *Alexis*, **Beth**, Briana)

Share Out 2: Groups 2,8: (with, **Juan**, *Mel*, ReAnna)

Share Out 2: Groups 3,5,7: (with *Sara*, **Arielle**, Meseret)

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Share Out 1: Groups 1,2,3 (with Sara, Arielle, Meseret)

Share Out 1: Groups 4,5 (with Felicia, Alexis, Beth, Briana)

Share Out 1: Groups 6,7,8 (with Juan, Mel, ReAnna)

Share Out 2: Groups 1,4,6 (with Felicia, Alexis, Beth, Briana)

Share Out 2: Groups 2,8: (with, Juan, Mel, ReAnna)

Share Out 2: Groups 3,5,7: (with Sara, Arielle, Meseret)

Share Out 1: Groups 1,2,3 (with *Sara*, **Arielle**, Meseret)

- Group 1
    - Level is mostly intro-level undergraduate. Both calc-based and algebra-based
    - Talked about what instructors have control over, lots of content required by dept, so focused on structure of **grading practices**: final exams + group projects
        - Retaining students from marginalized groups
        - Didn't see a difference between open book and other exam types this year (after going emergency online in 2020), would there be something better than numerically-based standard exam such as optional final projects? Or replace time in class period with different approaches
            - Moving away from so much of assessment being timed exam style, because it **doesn't reflect how students learn**, and scale it up
            - Difference in having graders at a large university for example
            - Tried asking students about application to students lives as an extra credit assignment
            - Would be interesting to try how student portfolios could be structured for larger classes
        - Breaking assignments into small parts, Wondering if these are really equitable if they result in lots of 0s, Instead working toward a **mastery based** system
            - Using "Classwork Credits" for homework simply reduce the weight of the tests, so students can't lose credit they can only gain credits on hw/classwork
- Group 2
    - Understood each others contexts in the high school setting
        - How to make equity/inclusion concepts land for students, how to work model minority myth into curriculum and teaching physics in context of broader society to broaden who physics is reaching, making the order of topics more accessible (e.g. how math-heaviness affects who feels like physics is for them)
- Group 3
    - Teaching calculus/algebra based physics at small/large universities
    - Talked about finding more examples to bring more representation into Introductory physics
        - Integrating underrepresentation curriculum, growth mindset into classes
    - How do we navigate through implicit bias and systemic racism? Aware that instructors need to be careful with how we delve into / address these topics
- EDI consulting with Meseret.Hailu@asu.edu
    - How to alleviate disparities for marginalized students (e.g. black immigrant women) during group work to avoid them feeling isolated or not heard

- Avoid isolating students as much as possible, would require asking students to identify themselves to give them the opportunity to work together
- Pre-determining groups externalized discomfort around having to find someone they identify with if that person does not exist in the classroom
- Assigning roles and having roles rotate and defined such as “Devil’s Advocate, Creative Connector, etc.”
    - **Resource** for discussion based pedagogy applied to deep reading groups: **Parrott, H. M., & Cherry, E. (2011). Using structured reading groups to facilitate deep learning. Teaching Sociology, 39(4), 354-370. https://journals.sagepub.com/doi/abs/10.1177/0092055x11418687**
    - Avoids students who have proclivity toward leadership etc. to be overburdened or avoids that person always being seen as intellectual or being taken most seriously
- Mixed ability groups tend to be the most productive rather than grouping by ability or grade
    - Students who are excelling also learn and cement understanding by having to teach someone else
- Instructors have discretion to try to create as diverse groups as possible while respecting student preferences with insight from assessments
- Giving students the space to anonymously **evaluate themselves** and peers in group work allows for critical assessment without being punitive, helps with classroom dynamics, only instructor reads and share out group issues in aggregate with the class
    - Peer evaluation templates can be shared (contact: Meseret.Hailu@asu.edu)

Share Out 1: Groups 4,5 (with *Felicia*, Alexis, **Beth**, Briana)

Group 4:

- Decolonizing curriculum
    - Physics has historically been more diverse than textbooks lead on
    - Show students a more representative sampling
    - Reflecting on why we want more representation..what/who is this serving?
        - Must acknowledge the "why" at all steps
        - Is this for students or for their own bias?
    - Showing that there are more people that don't fit the stereotypical mold of a scientist/physicist and to see that they do belong on this field; getting those that do fit this mold to accept this notion
        - Showing brilliance of students
- Trying to incorporate within own courses (introductory) with versatile style of teaching methods
    - Also upper-level.
    - Telling stories with relevance to own courses
- We cannot tell all the details of physics...bring the strengths of the students into the narrative
    - This does not need to be lecture style but be more engaging
    - Getting students to discover D&I to allow them to find their own place in the space
    - Recognizing their brilliance now and now only focusing on past-leaders.
    - IEPs and 504s should be included also. Give that context

Group 5:

- How to give out content that's inclusive/discovery based.
- Develop scaffolds for learning to supports student learning with different backgrounds/types of learning to allow them to feel properly engaged
    - Unit: Forces
        - Discomfort w/ hands on self-discovery piece of science and to add structure to this experience
        - Students see themselves as scientists also
    - Differentiated style of teaching which is different for everyone for engagement.
    - "Find attainable success in their own way"
    - Representation: Dominant narrative of homogenous group of physicists, but having students identifying that they belong to this group of people
    - If students were to come up with idea what would they name it and why? How have other people named it? How have different people across time articulated ideas and who got the credit, role of institutes, valuing role of some over others
    - Gatekeepers of knowledge
    - What would you do if you had a great idea but someone else associated with the institution got things named after them?
        - All about fairness and acknowledge subjectivity inscience
        - Who gets to tell the story
        - Allow students to recognize they can make discoveries and name them. ==equity piece
- Q: balance between open inquiry and student-driven vs. grade on demonstration of mastery; meeting targets which satisfy prerequisites for other courses. Cannot put in more without taking out somewhere. Burden on students is too much
    - Doesn't necessarily need to be overwhelming. Standardized timing for it. Need to know purpose of concepts they're learning anyway, but they don't need an extra project, but

try to incorporate these lessons as extension, extra credit, or within relevant assignment

- Critically think about constraints but get practice being a scientist.
- Let me share two examples (people) to be inclusive to highlight without adding much; who played key roles? Who has been omitted?
- Set framework to give students lenses for coming up with equations (not elaborate). Losing out on richness
- What makes science possible?? Opening up physics for more interpretation.

General consensus is that the working session was useful to start creating ideas or start the process

Share Out 1: Groups 6,7,8 (with Farrah, **Juan**, *Mel*, ReAnna)

Group 6: authentic ways to bring in diversity, incorporate recurring (vs. one and done), focus on motion, forces, energy and momentum; - relate this to more modern events. Positive (less old guys. (HS group)

Group 7: boundaries and emotional labor; hazing around physics; students bring trauma to these spaces; how do we navigate and build those boundaries; recommendations for tenured folks (often white dudes); make physics not miserable (Four Year College Group)

Group 8: CC, Liberal Arts, R1 folks; similar ideas - different activities they have implemented; enhancing representation and providing materials that folks can easily add to their classes; spotlight on a scientist that we choose; maybe having concepts/inventions from different cultures (feature non western sci); focus on more modern scientists vs historical figures; have students be in charge of writing up things; Also important to think about assessment and how that would fit in- do the activities work? How do we know our classroom is inclusive? In a growth mindset;

ReAnna: context matters; who's knowledge is most worth knowing and whose knowledge is silenced; anytime you have outside of norm, diversity is part of your discussion; (from Malcolm Butler -K-12 physics spaces); what is content within community - positive things; humans are complex. Sci method is problematic; how the physics we are engaging with is not neutral;

SM being normative (Federica has thought about ways to address this). Hard to find ways to discuss;

Katie D: Is there language that folks are using? Meredith: Is science objective or subjective - human invention; from the Underrepresentation Curriculum;

Katie A:talking about the history - why did this person get their name on this? Snells Law is based on a myth - not necessarily the dude who discovered it - who gets to get their name on it.

Juan: Critical inquiry; student often feel uncomfortable critiquing (both listening and giving);

Chandra Prescod Weinstein: Decolonizing science;
https://medium.com/@chanda/decolonising-science-reading-list-339fb773d51f

What does it mean to humanize;

Hazing: if you cant keep up you dont belong; physics is pain - should not be fun; if you dont immediately get it you are stupid;

Share Out 2: Groups 1,4,6 (with Felicia, *Alexis*, **Beth**, Briana)

Group 1: Looking at group structures, grading policies, how EDI interacts with materials. Talked about flexible schedules, reducing emphasis on exams. Looking at places to weave in student experiences in projects. Anticipate they'll bring in different things because of their contexts. See tension between systemic constraints and flexibility. Looking at whether and how they can balance pressures

Group 4: Trying to produce a series of a resources that faculty can use to provide a list of physicists that they can mention. E.g., if they're talking about forces, who can they feature besides white men (e.g., Newton)? Looking to produce discussion prompts and other activities that students can answer, to think about who is present and why in physics.

Group 6: High school teachers, looking at doing something unit by unit. Trying to find places and people they can add to the curriculum. There are constraints around time and curricular standards opposed upon them. One idea to do: they might focus on cultures rather than just people. Sometimes, we don't know the names of people but we know what cultural groups have accomplished.

Common themes include: standards/content coverage and constraints around time

Briana: what are your goals? What do you want students to come away with? Skills, knowledge, "a desire to continue to learn and progress and struggle"? Consider naming the skill/goal/etc. Is flexibility proactive or retroactive? Do you make an extension or do you let students know they only have to complete x of y assignments?

Concerned about skills vs. knowledge, because many students might need content covered for future endeavors like grad school

Share Out 2: Groups 2,8: (with, **Juan**, *Mel*, ReAnna)

Group 2: Model minority myth lesson; e-waste / battery lesson / role of science in handling these things / (HS teaching space) --- up to the hard part --- model minority myth- tried to have discussion around BLM / South Asian / SE Asian / stereotypes / raising awareness / how this has been weaponized; students may not be aware so supporting them in giving them the language /

Group 8: CC, Liberal Arts / R1: activities focusing on inclusion in the narrative of physics / sci from diverse background and make these feature easy to implement by everyone / Meredith has a slide / make it searchable by topics. Metrics of success is what we are struggling with / contacting editors to put in their books /

What does sustainability look like / centered in whiteness / indiginous folks engage with the land / Three R's - bags from Krogers - multiuse - folks have been engaged in sustainable practices / suing an oil refinery / environmental racism / history / exploiting labor /

Assessment: do i feel comfortable sharing my full self - what ways do i feel included / how do i see myself reflected in this classroom /

Share Out 2: Groups 3,5,7: (with *Sara*, **Arielle**, Meseret)

- Group 3
  - Cultivating list of diverse examples of doing physics to use in classes
  - How to adapt best practices for addressing these in labs/classes and how to facilitate these discussions
  - Challenges of doing this within an inherently inequitable system, feels beyond instructors' control, how to make better within classes
  - How to improve a sense of belonging in physics courses
- Group 5
  - Forces unit for MS/HS physics
    - Objective to provide scaffolds for students to get comfortable with inquiry and discouraging process of being wrong and shifting culture around that, hard for students to feel ok with struggling, need voices of all types coming into classroom
    - Differentiated instruction: students make initial claims of what is happening and self assess based on alignment with explanation (Not yet/ Almost there / Ready for what's next)
    - Exploring follow-up activities e.g. changing mass in simulation to see what happens to acceleration
- Group 7
  - Classroom policies and culture that works for everyone
    - What work means and making sure to maximize student learning in ways that students like
  - 3 foci
    - 1. Creating lab spaces that provide freedom to explore, enough constraints to write things down and have things last
    - 2. Balancing time and access with office hours / help sessions / availability that protects instructors' time
    - 3. Fair and equitable assessment of student learning, incentives for students to demonstrate their learning
  - Started with conversation that a lot of physics culture is hazing "fit in or fail", instructors want to respond and say "we don't do this"
- EDI consulting
  - **Resource:** Strayhorn, T. L. (2011). **Sense of belonging** and African-American student success in STEM: comparative insights between men and women. In Beyond stock stories and folktales: African Americans' paths to STEM fields. Emerald Group Publishing Limited.
    - Explores links between social isolation, loneliness, and belonging from affective behavioral perspective
    - **Resource:** Strayhorn, T. L. (2018). College students' **sense of belonging**: A key to educational success for all students. Routledge.
  - **Resource:** Tuitt, F., Hanna, M., Martinez, L. M., Salazar, M., & Griffin, R. (2009). Teaching in the line of fire: Faculty of color in the academy. Thought & Action, 25, 65-74.

- Inverse experience, when junior faculty of color are in classroom full of not predominantly students of color
- Credibility is understood / perceived differently by students depending on who the instructor is
    - Something that might be perceived as rigorous from one faculty member might be perceived as controlling from another
    - If extending deadlines or providing flexibility might be perceived as sloppy or ill-prepared
    - Faculty experiences are something to keep in mind when thinking about instructor policies
    - An inclusive classroom should be inclusive for minority faculty too.