All About Guided Discovery: Hour Glass Simulation

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Hour Glass Modeling Activity

- Your task for this assignment is to program a simulation of an hour glass. Start with a simple simulation, then we can build in complexity as we go.

- Consider the following video: [https://www.youtube.com/watch?v=CltD7aXr2fw](https://www.youtube.com/watch?v=CltD7aXr2fw)

- Also, take a look at my basic simulation: [https://agentcubesonline.com/project/72020](https://agentcubesonline.com/project/72020)
Pair up and get started

► Partner with your neighbor, go find someone if you are not sitting next to someone
► One computer per pair
► driver and navigator
Start simple, then make it more realistic and complicated once you have it working.

- Is it realistic?
- How does the sand stack?
- Try different shaped hour glasses
- Multiple basins

If you have used simulation properties before:

- Add a random element to horizontal motion
- Model water and sand
- Model wind or a tendency to go one direction over another
- Random chance that it does not fall straight down (dispersion)
One of your pair stay put, one of you walk the room to get ideas from your peers
Work for 10 more minutes...

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If you have used simulation properties before:

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- Model wind or a tendency to go one direction over another
- Random chance that it does not fall straight down (dispersion)
Discussion

- How did you get the sand to move?
- What problems did you encounter? What was easier for you to solve?
- Which extension activities did you pursue?
Discussion

- What suggestions would you have for this activity if you were to use it in your classroom?
  - What scaffolds would you use?
  - How much time would you have them spend offline/unplugged?
  - Would you limit them to just sand or would you give more control over the theme of the simulation, beyond just “something falling”
Discussion

- What did you find useful about this model of learning? Did you learn new ways to use the code? Did you have the opportunity to genuinely problem solve?

- What was frustrating about this type of activity? Did it take longer than if I just told you what to do? What would have been the downside of me teaching by explaining rather than by guiding?
Discussion

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Jeff’s games

- Basic: https://agentcubesonline.com/project/846740
- With simulation properties: https://agentcubesonline.com/project/58495
- To make a timer: https://agentcubesonline.com/project/72020