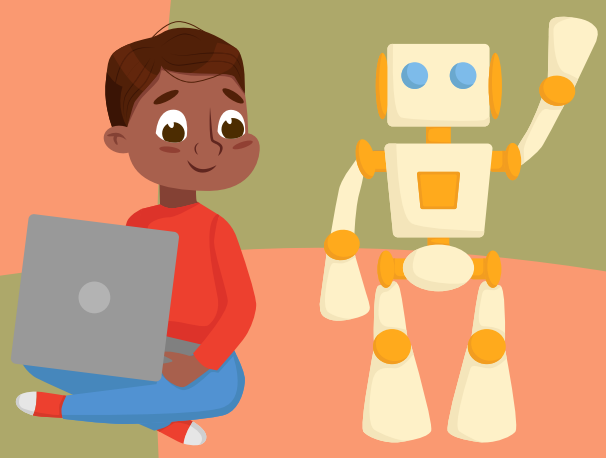
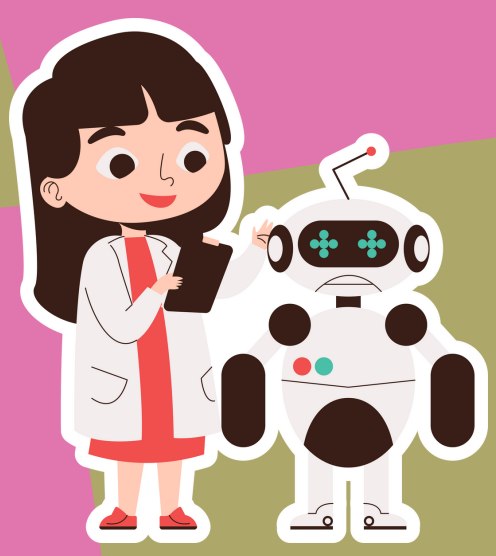
Physical Computing for K-5 Students

What's going on?

To broaden engagement in computing, it is important to develop interest early and in the most approachable manner possible for the benefit of students and teachers alike. A significant barrier to getting students interested in computing is their ability to understand what is being taught to them and to make connections with the physical world.





What is it?

Physical computing generally refers to the combination of software and hardware that allows for a more interactive computing experience. Integrating physical elements when teaching computing can enhance student understanding and engagement as well as stimulate creativity.

Why does it matter?

Since physical computing changes the way students approach computing, it could be the push they need to make computing click. Physical computing projects can be an excellent area to promote partner programming, allowing students to grow their computing and collaborative skills at the same time.

How to use it?

Physical computing allows for a host of fun projects that get students excited about what they are learning. Devices with LED lights and sensors can be coded to display different colors and images based on stimuli and input, allowing for a range of creative projects. E-textiles may also be an option to have young learners code wearable devices.

Physical Computing

Research

Podcast

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Hodges, S., Sentance, S., Finney, J., & Ball, T. (2020). Physical computing: A key element of modern computer science education. Computer, 53(4), 20-30.