

PS: Differentiated Learning K-8

The main goal of our K-8 differentiated learning curriculum content is to develop skill sets in integrating module content across disciplines.

This first K-8 integration section introduces three main practices that the *IndianaComputes!* curriculum follows:

- Project/Problem Based Learning - although there are significant differences between these models, we reflect pieces of each perspective.
- The belief that computational thinking is educationally trans-formative, and produces benefits when included across disciplines.
- Because student experience and attitude towards computing is so wide-ranging, *IndianaComputes!* believes there is particular benefit in considering scale-able activities than can easily be modified to challenge a variety of students.

Take a few moments to read over the **[Indiana K-8 Computer Science \("CS"\) standards](https://iu.instructure.com/courses/1903143/files/103286701/download?wrap=1)**

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Note the following:

- Unlike other disciplinary standards (ELA, Math, etc.), the Computer Science standards were introduced by **grade band** and not grade level. This was deliberate, out of recognition that school districts are at different "readiness states", including equipment, teacher training, student technology equity, etc.
- Within the standards, there are **5 repeating threads**:
 - Data and Information
 - Computing Devices and Systems
 - Programs and Algorithms
 - Networking and Communication
 - Impact and Culture

The idea is that as students progress through the grade bands, the content in each thread becomes ever richer.

- There is deliberate redundancy built in to the standards: a significant portion of the CS standards are actually technology standards. New content falls largely in three main categories
 - **data**
 - **programming**
 - **networking**
- **Problem solving** is explicitly recognized across all three K-8 grade bands (K-2, 3-5 and 6-8).

- **"Step by step"** problem solutions are introduced in the K-2 grade band and identified as **algorithms** in grade bands 3-5 and above.
- Computer Science activities that occur off the computer are called **"unplugged"**. Note that programming is introduced as **un-plugged activities** in K-2, adding online, **general problem solving activities in a block based language** in the 3-5 band, and required with **formal consideration** in grade bands 6-8.
- Although data is somewhat neglected by many "curriculum-in-a-box" providers, the standards include a **strong data thread**.

This K-8 Differentiated activity focuses on three themes:

- Data
- Grid work
- The importance of precise language and thinking in computational work

We will consider each theme in the following engagement activities.