

Two PBJA stories...

- Story 1 – My Daughter



Two PBJA stories...

- Story 2 – Me



What's the point?

- **How we teach determines learning and PBJA**
 - Need to understand different learning styles – especially in K-12
 - Can't be just what we like and how we learn
- **Computing in K-12 is (typically) about:**
 - Technology – using the computer
 - Applications – taking that class in “Microsoft Word”
 - Programming – because middle school students need Java
 - Rigidity – Syntax and language
- **What we see as awe-inspiring, they see as ho-hum**

What to do?

- **Start computing early and teach it often**
 - We already teach CS concepts early, but... we don't connect them to CS
 - Spiral our teaching and their learning... continual reinforcement
 - Teach at developmentally appropriate times
 - Give them PBJA early... By middle school, students are starting to form lasting opinions about what disciplines are interesting and useful

What to do?

- **Big Ideas, Big Concepts**

- Whether we call it computing, computer science, computational thinking, it needs to be big concepts, not the tools of the trade
- It needs to be geared to everyone, not just prospective majors
- 15,000 vs. 275,000
- Need to change from the perception (and reality) of being “difficult and time-consuming” to being “intellectually rigorous”
- Can’t “dumb down” the class as a way to improve diversity

What to do?

- **Use the computer as the TOOL, not the FOCAL POINT**
 - Science classes have a lab every 1-2 weeks to supplement the concepts that the students are learning
 - CS class have concepts every 1-2 weeks to supplement the labs that the students are doing
- **Big win in interdisciplinary computing**
 - Different from “computing across the curriculum”
 - Students want relevance