NCWIT Resources and EngageCSEdu

Gretchen Achenbach

**National Center for Women & IT
University of Virginia**

NCWIT provides free, high-quality, research-based resources
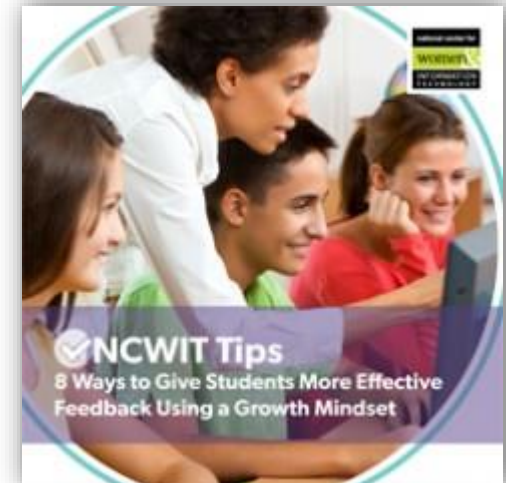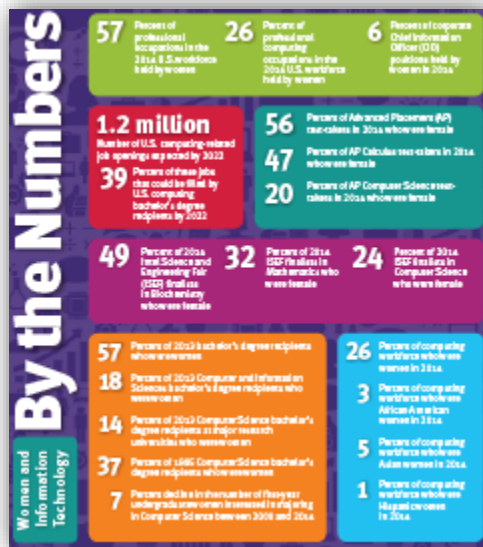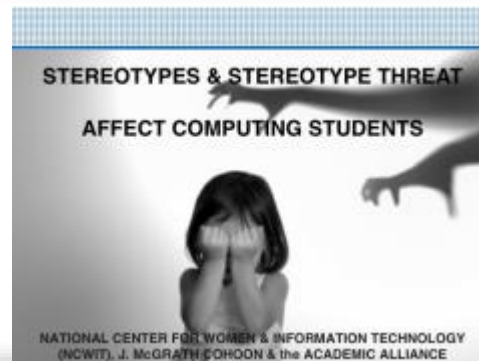
NCWIT resources can help you:

- Inform others about the importance of CS

- Inform others about the need for diversity in CS

- Recruit and retain diverse students in your CS classes

- Find engaging and inclusive class materials

www.ncwit.org

You, (or your child or student) should consider pursuing a degree in computing because:
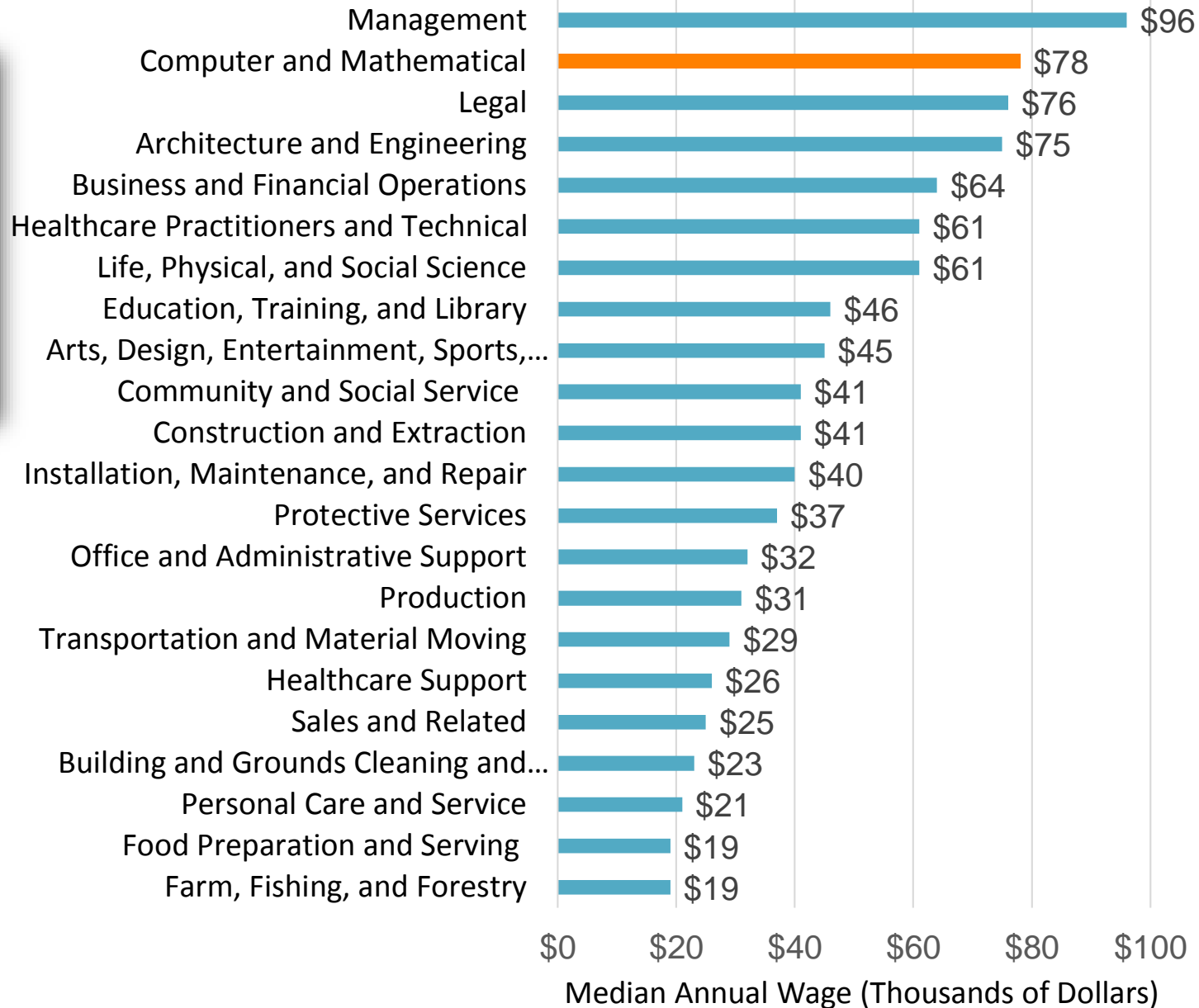
There are good jobs in computing

You, (or your child or student) should consider pursuing a degree in computing because:

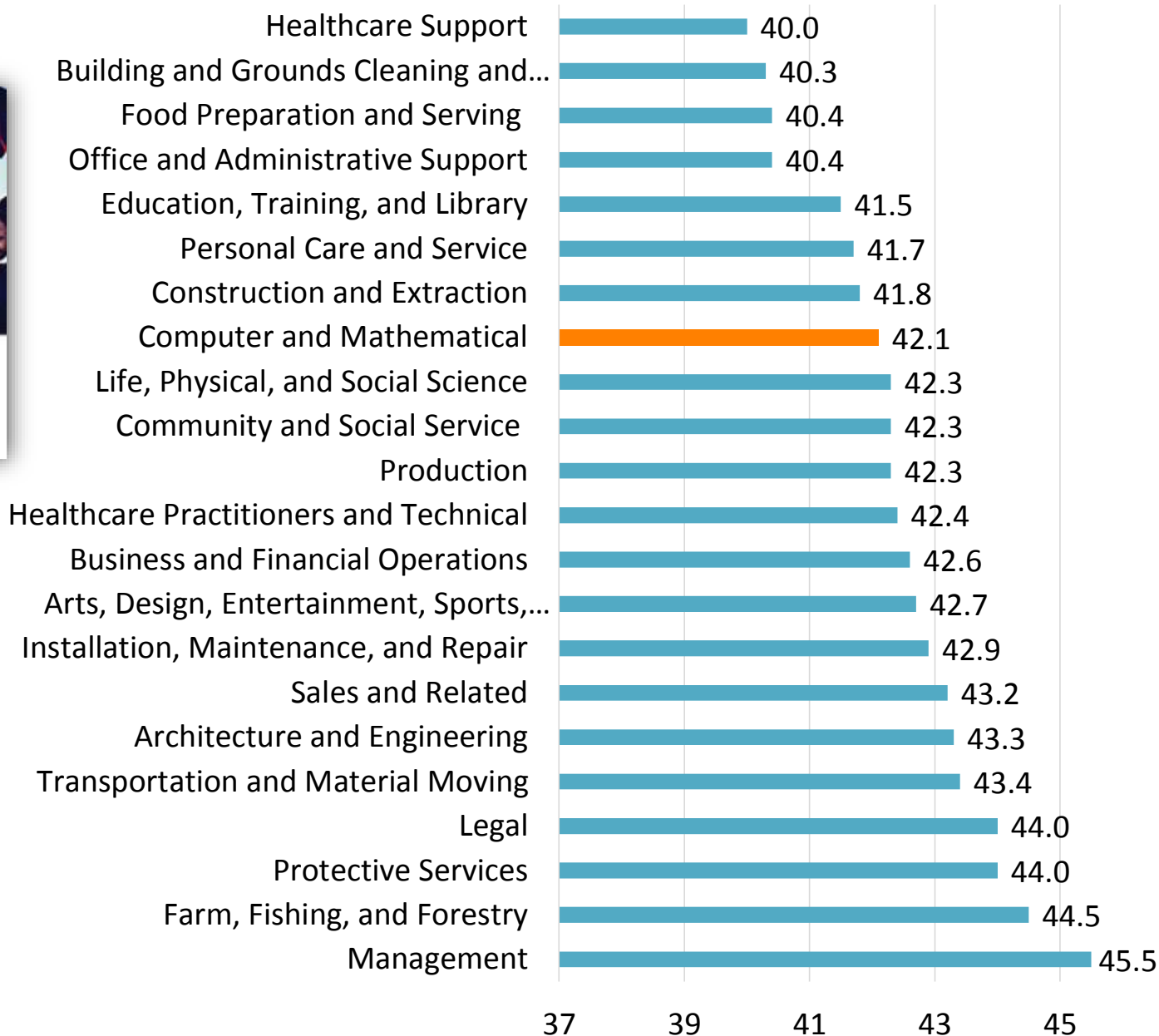Computing pays well

(U.S. Bureau of Labor Statistics, 2014)

Median Annual Wage (Thousands of Dollars)

Occupation	Wage
Management	$96
Computer and Mathematical	$78
Legal	$76
Architecture and Engineering	$75
Business and Financial Operations	$64
Healthcare Practitioners and Technical	$61
Life, Physical, and Social Science	$61
Education, Training, and Library	$46
Arts, Design, Entertainment, Sports,…	$45
Community and Social Service	$41
Construction and Extraction	$41
Installation, Maintenance, and Repair	$40
Protective Services	$37
Office and Administrative Support	$32
Production	$31
Transportation and Material Moving	$29
Healthcare Support	$26
Sales and Related	$25
Building and Grounds Cleaning and…	$23
Personal Care and Service	$21
Food Preparation and Serving	$19
Farm, Fishing, and Forestry	$19

You, (or your child or student) should consider pursuing a degree in computing because:

Computing offers reasonable hours

(U.S. Bureau of Labor Statistics, 2014)

Occupation	Hours
Healthcare Support	40.0
Building and Grounds Cleaning and…	40.3
Food Preparation and Serving	40.4
Office and Administrative Support	40.4
Education, Training, and Library	41.5
Personal Care and Service	41.7
Construction and Extraction	41.8
Computer and Mathematical	42.1
Life, Physical, and Social Science	42.3
Community and Social Service	42.3
Production	42.3
Healthcare Practitioners and Technical	42.4
Business and Financial Operations	42.6
Arts, Design, Entertainment, Sports,…	42.7
Installation, Maintenance, and Repair	42.9
Sales and Related	43.2
Architecture and Engineering	43.3
Transportation and Material Moving	43.4
Legal	44.0
Protective Services	44.0
Farm, Fishing, and Forestry	44.5
Management	45.5

High school CS lacks gender diversity:

There aren't many girls in my CS class

High School CS lacks gender diversity:

You can use slides from the **NCWIT Scorecard: A Report on the Status of Women in IT**

SECONDARY EDUCATION
Fewer Girls Doing CS in Science Fairs

FEMALE PERCENTAGE OF PARTICIPANTS, INTEL SCIENCE AND ENGINEERING FAIR (ISEF), 1999-2012

SECONDARY EDUCATION
Disproportionate Numbers Among CS AP-Takers

In 2013:

- 56% of 2.2 million U.S. AP exam-takers were female
- BUT only 19% of those who took a computer science AP exam were female

Make a Difference
REACH OUT

Present a hands-on activity to middle-school students using *Outreach-in-a-Box*
www.ncwit.org/outreach
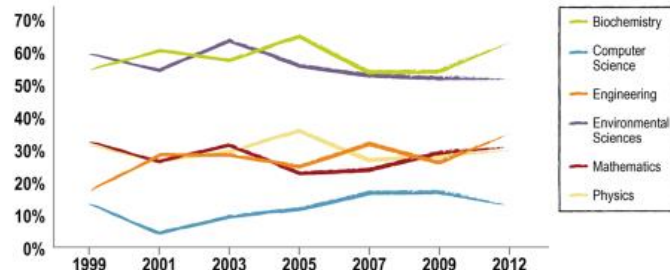
ncwit.org/scorecard

and for more information see **Girls in IT: The Facts**

GIRLS IN IT: THE FACTS

Talking Points cards

Sample topics:

- Why Should Young Women Consider Careers in IT? (also in Spanish)
- Moving Beyond Computer *Literacy*: Why Schools Should Teach Computer *Science*
- Talk with Faculty Colleagues about Stereotype Threat
- Comparing U.S. K-12 Students' Math and Science Performance Internationally

Top 10 Ways

- Families can Encourage Girls' Interest in Computing (also in Spanish)
- To Increase Girls' Participation in Computing Competitions
- Of Recruiting High School Women into Your Computing Classes

To Engage Under-Represented Students in Computing
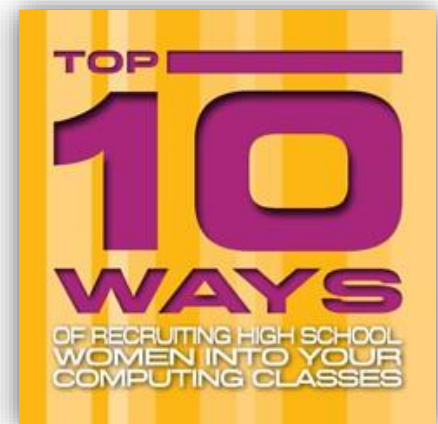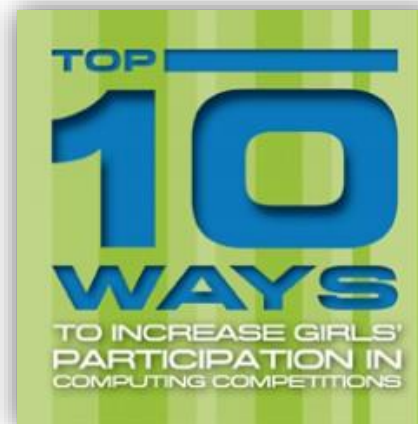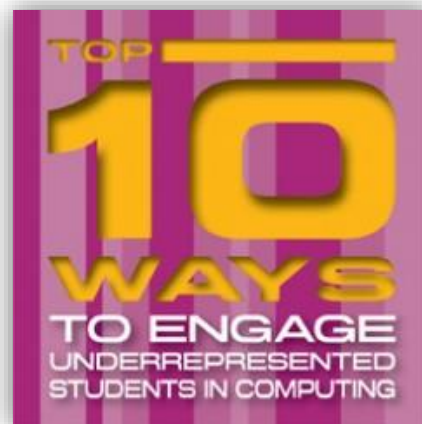
Promising Practices and Case Studies

Sample topics:

- Evaluating Software for Gender Bias
- Inclusive Strategies for Teaching Students with Disabilities
- Design Physical Space with Broad Appeal
- Change the Gender Composition of High School CS courses
- Encouragement Works
- Pair Programming
- Stereotype threat
- Scratch
- Alice
- CS Unplugged

In-A-Box – everything you need to know to get started with:

- Pair Programming
- E-Textiles
- CS Unplugged
- Agent Cubes – Introducing Computing through Game Design

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Latinas & Tecnología de la Información

Resources
Profiles of Latinas in Tech
Videos
Links

PERFILES

Yolián Amaro-Rivera
Estudios de licenciatura, Ingeniería en computación

www.ncwit.org/latinas-information-technology

LOS 10 MEJORES CONSEJOS
PARA QUE LA FAMILIA LOGRE QUE LAS NIÑAS SE INTERESEN EN LA COMPUTACIÓN

An online collection of CS1/CS2 course materials to help retain and recruit diverse students

www.engage-csedu.org

What's special about EngageCSEdu?

- 1500+ peer-reviewed course materials... and growing
- Easy to browse and search
- All materials employ research-based Engagement Practices
- Linked to NCWIT resources and research

Course Materials include:

Projects
Homework Assignments
Tutorials
Labs
Assessments
Lecture Notes
Exercises
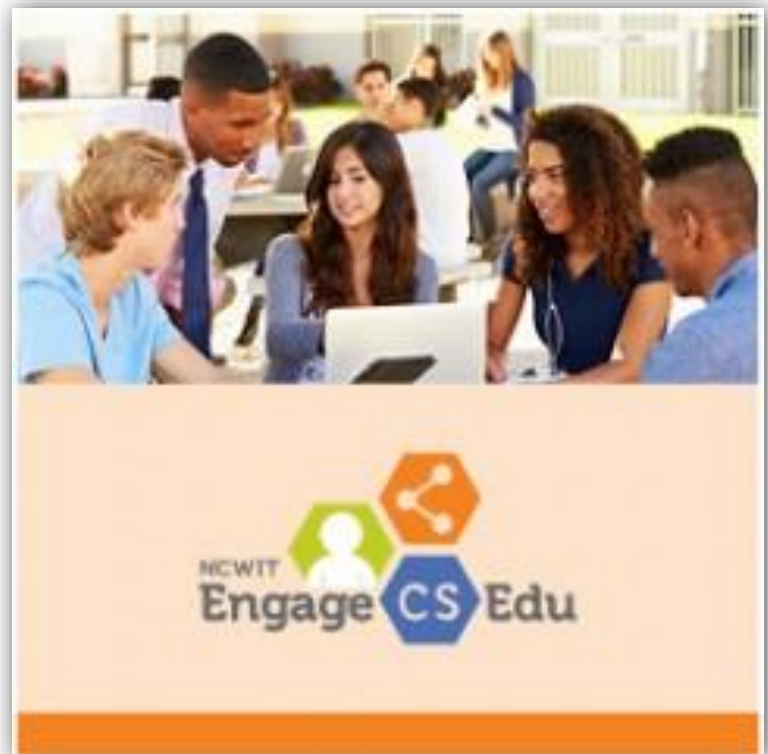
The Materials Peer Review Process

Material Submitted to EngageCSEdu Collection

Initial Content Manager Review

Computer Scientist Review (CS content, pedagogy)

Social Scientist/ Learning Scientist Review (Engagement Practices)
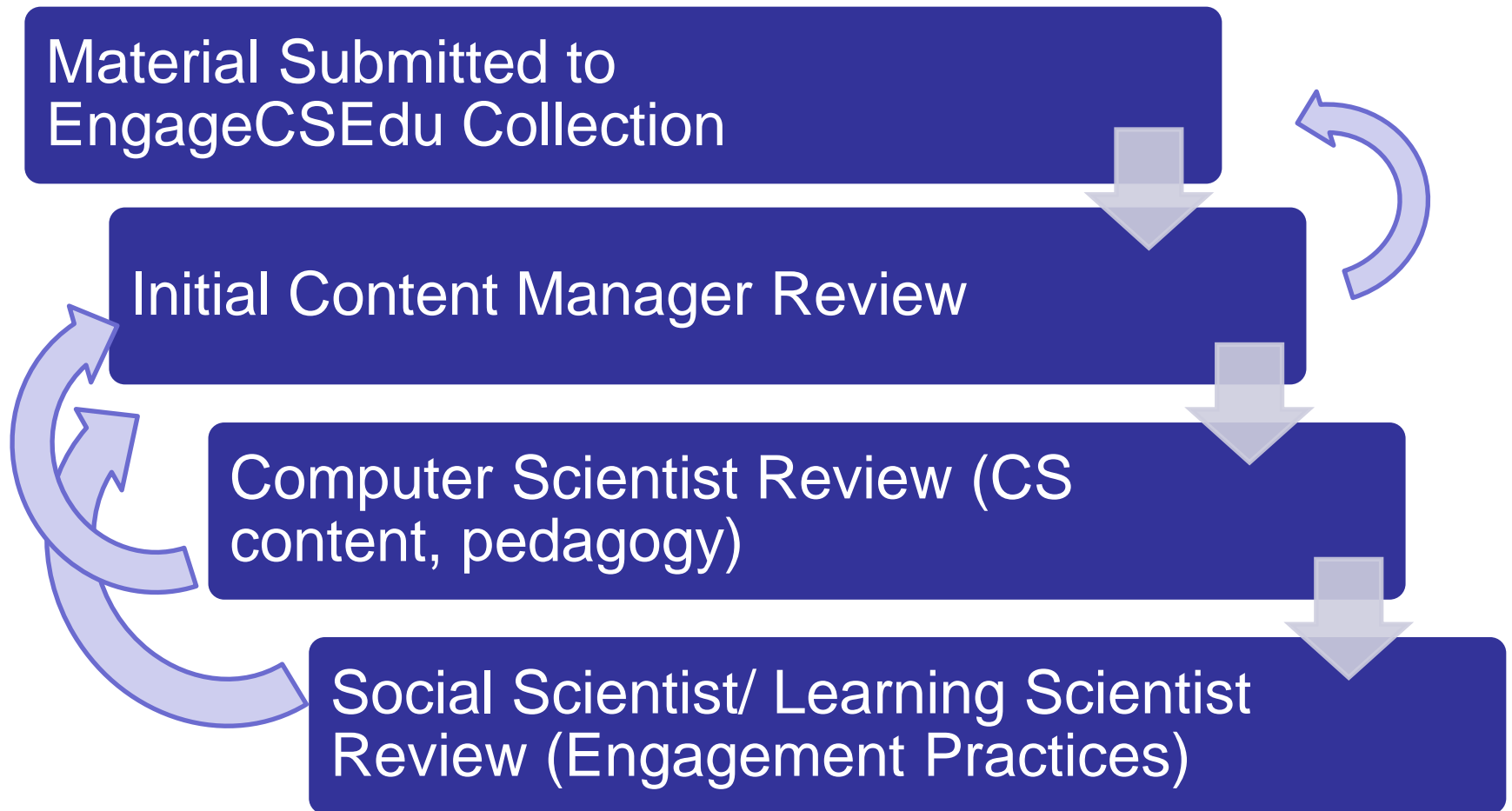
Search for materials by:

Course Level
    CS1, CS2

Material Type
    Assessment, assignment, lecture slides, lab, etc…

Programming Language
    C, C#, C++, Java, JavaScript, Python, etc…

Engagement Practices
    Meaningful and relevant context,
    Address misconceptions about CS,
    Effective encouragement, etc…

Engagement Practices

Improve Students' Perception of CS

- Provide Meaningful and Relevant Content
- Address Misconceptions About the Field of CS
- Make Interdisciplinary Connections to CS

Improve Students' Experiences
FORMAL STRATEGIES

- Group Students by Level of Experience
- Use Problem- and Project-based Learning
- Implement Pair Programming
- Use Peer Instruction
- Employ Process Oriented Guided Inquiry Learning (POGIL)
- Provide Worked Examples
- Offer Student-Focused Assessment
- Incorporate Student Choice

Improve Students' Experiences
INFORMAL STRATEGIES

- Provide Effective Encouragement
- Avoid Stereotypes and Mitigate Stereotype Threat
- Encourage Student-Student Interaction
- Facilitate Student-Faculty Interaction

Engagement Practices

- Each engagement practice defined
- Brief examples of the practice
- Links to relevant NCWIT resources
- Links to other resources and research

www.engage-csedu.org

www.engage-csedu.org

Browse Materials:

www.engage-csedu.org
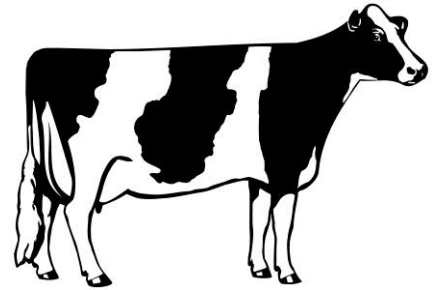
Engagement Practices:

www.engage-csedu.org

Find:

An assignment on *data structures*

That uses *Java*

And will expand your knowledge of cow pedigrees

What breed of cow does it concern?

Where is the breed association's headquarters?

Hint: you will need to open the actual assignment

www.engage-csedu.org

Find:
The engagement practice *Student-Student Interaction*

What three NCWIT resources could you go to for more information?

Thank you!