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influenced career interests positively after grade 6 and 7, and possible influencers causing a decrease in interest in STEM careers after grade 8.

How Sentiments and Approaches Change from AP to Regular and to Honors Science Courses
Eugene Judson, Arizona State University
Lydia Ross, Arizona State University

ABSTRACT:
Eighty-five high school science teachers indicated how their approaches to teaching, their beliefs about learning, and the autonomy they have over a course varied between either an Advanced Placement (AP) and a regular science course or between an AP and an honors science course. Findings included the anticipated result that teachers spent a great deal more time having students prepare for tests in AP courses. Similarities between course types included strong sentiment that students should share their reasoning and relatively low emphasis on memorizing science vocabulary and facts. Significant differences included teachers having AP students complete homework more frequently, engage in more discussion, and analyze data more than regular-track students. Teachers were also more focused on honors students developing an interest in science and generally feel they have less control over content and goals in AP than in regular or honors courses. The gravity of these findings are placed in the context of the ongoing growth of AP STEM courses and the high value placed on the establishment of STEM AP courses by national organizations.

Improvement of Students' Science Knowledge and Socio-scientific Reasoning through Socio-scientific Issue Teaching
Hai T. Nguyen, University of Missouri, Columbia
Troy Sadler, University of Missouri
Andrew T. Kinslow, University of Missouri

ABSTRACT:
The purpose of this study was to identify evidence in students’ socio-scientific reasoning improvement within the context of real-world socio-scientific issues (SSI). We used mixed methods research design to explore high school students’ (n = 36) learning and reasoning. Results revealed that there was a significant improvement in students’ socio-scientific reasoning (SSR) regarding complexity and inquiry before and after an SSI-based course. The teaching and learning activities in the SSI-based course were discussed as a potential source for the development of socio-scientific reasoning among participants. This study supports and extends other work related to how teachers’ implication of SSI-based curriculum may influence students’ SSR and has an impact on students learning scientific content knowledge.

Teaching Electrical Resistance to 6th Grade Visually Impaired Students
Betul Okeu, Ataturk University
Mustafa Sozbilir
Mustafa Bulbul

ABSTRACT:
This study aims to develop an instructional design teaching electrical resistance to 6th grade visually impaired students. Initially the needs of visual impairment students for particularly learning science were identified. An instructional setting was designed to meet their needs and it is evaluated. The study was conducted as a Design Based Research (DBR). The research groups are consisting of six visually impaired students including one blind at the needs analysis stage while the implementation of the developed instructional design was carried out with seven visually impaired students including one blind. The results showed a high achievement in gaining the intended learning outcomes regarding the concepts of electrical resistance. The results also indicated improvement in students’ scientific process skills as well as developing positive attitude towards science.

Strand 5: College Science Teaching and Learning (Grades 13-20)
Poster Session A
3:15-4:15pm, Hyatt Texas Ballroom A, B, and C

Disappearing trends: Examples of Simpson's Paradox in Introductory Science Courses
Rebecca L. Matz, Michigan State University
Zachary D. Nusbaum, Michigan State University
James T. Laverty, Kansas State University
Melanie M. Cooper, Michigan State University

ABSTRACT:
As calls for improvements in science education continue, it is important that researchers and practitioners be able to reliably characterize changes in instruction and assessment practices. We have developed two protocols for undergraduate introductory science courses, one for observation of classroom instruction and one for assessments. Using these protocols, we investigated the relationship between time spent lecturing and both student enrollment and how much high-stakes exams reflect the dimensions laid out in the Framework for K-12 Science Education. Scientific practices, crosscutting concepts, and core ideas form the foundation of the Framework and together are a vision for science education that emphasizes providing students opportunities to experience how science is practiced. Across biology, chemistry, and physics courses in aggregate, we find time spent lecturing is positively correlated with student enrollment and negatively correlated with proportion of exam questions that incorporate the dimensions. However, we