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Applying physics to solve problems in new contexts and representations: Methods Students Use

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“The questions on the test were, like, totally different from the homework.” All of us have heard variations on this statement. Yet, when we look at the homework and the test questions, we see great similarities. Changing the context or the representation in a physics problem can cause students to have significant difficulties. These difficulties persist sometimes in homework problems, exams and even hands-on activities. With significant effort from Sanjay Rebello our group has been investigating some of the issues which lead to the inability to apply physics learned in one context or with one representation to other situations. By looking at what aspects students are able to use easily and those that they have difficulty applying, we are beginning to understand some of the aspects that help this transfer of learning and some that do not. (Supported by the grants from the National Science Foundation and US Department of Education)