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The Size of Matter: Why Properties Change at the Nanoscale

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Size is a factor that affects all aspects of our lives. The behavior of objects can change dramatically as size decreases. This unit will help students discover how size affects the functions, behaviors, and properties of matter. Students will learn the relationship between absolute and relative size at different scales. The unit will review forces that act upon atoms and molecules and how these forces affect materials of different size. The focus of the unit is atomic structure and forces as they relate to size, size and scale, and size dependent properties. The unit will provide students an opportunity to use scientific notation and the powers of ten to express specific measurements at varying scales, as they conduct in depth explorations on size and properties of matter. The culminating activity is a cross curriculum reading assignment that requires students to examine whether information in their stories are fact or fiction based on their knowledge of size and matter.

(Developed for Physical Science, Chemical and Physical Properties of Matter, grade 8; recommended for Physical Science, Middle and High School grades 8 and 10)