**Introduction:**

Have you ever had difficulty pouring ketchup from a bottle? You probably tried hitting the bottom of the bottle and found nothing came out. Ketchup is an example of a Non-Newtonian Fluid. Sir Isaac Newton was a famous eighteenth century physicist, best known for his work on gravity. He also described the properties of fluids. Water is a good example of a liquid that behaves like a Newtonian Fluid. Ketchup and quicksand are two example of Non-Newtonian Fluids that don’t behave like water.

In this activity, you will watch two videos featuring Ketchup and Oobleck (a mixture of cornstarch and water), which are both Non-Newtonian Fluids and colloids. A colloid is a mixture that is made up of particles suspended in a fluid. The particles are too large to form a solution, but small enough to remain suspended in the solvent. You will explore the properties of these fluids, learn how to get ketchup out of a bottle, and find out what to do if you ever fall into quicksand.

**Instructions:** Watch the following videos and answer the corresponding questions:

Video 1: <https://youtu.be/KB43fM_ozKQ> Video 2: <https://youtu.be/2mYHGn_Pd5M>

**Conclusion Questions:**

1. **How are these fluids like a liquid?**
2. **How are these fluids like a solid?**
3. **How did these colloids (oobleck and ketchup) differ?**
4. **Viscosity is a fluid’s resistance to flowing freely. Which of the two colloids was more viscous? Explain your answer.**
5. **Based on what you learned in this activity, why do people have difficulty pouring ketchup?**
6. **Quicksand is a Non-Newtonian fluid that gets more viscous when force is applied to it. Based on this activity, what should a person who falls into quicksand do to get out? Explain your answer.**