Mechanics Using Physical Phenomena	
Intro	Explain that our understanding of mechanics is influenced by the way we experience everyday life. e.g. What happens when you push something? Does it always move? What do you feel if you stand on one leg? We're going to use physical activities to help us develop a fell for and understand the way things work in mechanics and how we represent them mathematically.
Activity 1 approx. 5-10 mins	**Friction** 1. Place a calculator (with rubbery feet) with its keys facing up and push it, describe the way it feels and draw force diagrams on the board to represent the situation mathematically. Do the same after putting the calculator with the keys in contact with the table. What's changed? What hasn't changed? Conclusion? (Friction force depends on the nature of the surfaces in contact.) 2. Ask two people to stand and hold a book (with the spine vertical) between them with one palm each, first pushing gently and then pushing more firmly, someone else tries to pull the book downwards from between their hands in each case. Describe the way it feels and draw force diagrams on the board to represent the situation mathematically. What's changed? What hasn't changed? Conclusion? (Friction force depends on the normal contact force.)
Activity 2 approx. 10 mins	Two activities at each of 2 stations – students in small groups to try one and then swap to the other. **Students are asked to predict what might happen or what something might feel like before undertaking the task.** Encourage students to • describe how things feel • draw force diagrams • ask questions • see what else they can conclude e.g. what happens if you pull at an angle, what happens if you have two springs? **1. Stretching a bungee cord** **2. Using spring balances**
Plenary	Discuss findings and interesting points raised.

The worksheets used in this session are from 'Mechanics in Action', which can be downloaded from the STEM Centre website: *https://www.stem.org.uk/system/files/elibrary-resources/legacy_files_migrated/3635-Mechanics%20in%20action.pdf*