



**MathsNET**

A joined up approach to  
teaching and learning  
mathematics

# Newton's third law

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- Before watching the video try to explain what you understand the following physics terms to mean: **conservative vector field, energy, potential** and how are **potentials and forces** related
- What does Newton's third law state.
- Can you explain why in the video I insist that action is not the same as force.
- If the momentum of a system increases by  $\Delta p$  what is the corresponding change of momentum in the environment?



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- Explain what is meant by the term conservative vector field. How much does the momentum of a particle change by when it moves around a circular path in a conservative vector field.
- How is the kinetic energy calculated from the momentum. How is this expression derived? Is energy a scalar or a vector quantity making sure that you justify your answer?
- Explain why we introduce the notion of potential energy rather than considering the kinetic environment of the environment explicitly.
- How are forces related to potentials?