12.5: Thinking about the material

Reflect and research

1. How can a bicycle move forward? Draw the external forces on the bicycle that are required for the wheels to turn.
2. Does conservation of angular momentum play a role in being able to remain upright on a bicyle? If yes, how?
3. How does an anti-lock braking system (ABS) provide better breaking for your car? What is the physics behind this?

To try at home

1. Describe how you can qualitatively confirm conservation of angular momentum.

Reflect and research

1. Propose an experiment to measure the critical angle of an incline, above which a given object cannot roll without slipping, and compare this to a model prediction.
2. Propose an experiment to test the conservation of angular momentum of a rotating object.
3. Propose an experiment to test whether an object with constant velocity can impart angular momentum to another object.