# Oscillations

AP Physics C: Mechanics · Vocabulary in context

| Word | Example |
|---|---|
| **Simple harmonic motion** /ˈsɪmpl hɑːˈmɒnɪk ˈməʊʃn/ | **Simple harmonic motion** repeats back and forth, like a spring. |
| **periodic motion** /ˌpɪərɪˈɒdɪk ˈməʊʃn/ | A swinging pendulum shows **periodic motion**. |
| **equilibrium** /ˌiːkwɪˈlɪbrɪəm/ | At **equilibrium**, the oscillator's restoring force is zero. |
| **restoring force** /rɪˈstɔːrɪŋ fɔːs/ | The spring gives a **restoring force** towards the middle. |
| **differential equation** /ˌdɪfəˈrenʃl ɪˈkweɪʒn/ | A **differential equation** links a quantity and its rate of change. |
| **angular frequency** /ˈæŋgjʊlə ˈfriːkwənsi/ | The **angular frequency** is $2\pi$ times the frequency. $2\pi$ |
| **period** /ˈpɪərɪəd/ | The **period** of the wave is 0.02 s. 0.02 s |
| **frequency** /ˈfriːkwənsi/ | A **frequency** of 50 Hz means 50 waves every second. 50 Hz 50 |
| **amplitude** /ˈæmplɪtjuːd/ | Loud sounds have a large **amplitude**. |
| **phase constant** /feɪz ˈkɒnstənt/ | The **phase constant** tells us where the oscillation starts at $t = 0$. $t = 0$ |
| **natural frequency** /ˈnætʃərəl ˈfriːkwənsi/ | A swing has its own **natural frequency**. |
| **resonance** /ˈrezənəns/ | **Resonance** makes the swing go very high. |



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| **physical pendulum**<br>/ˈfɪzɪkl ˈpendjʊləm/ | A swinging metre ruler is a **physical pendulum**. |
| **small-angle approximation**<br>/smɔːl ˈæŋgl əˌprɒksɪˈmeɪʃn/ | The **small-angle approximation** says $\sin\theta \approx \theta$ for small angles in radians. |
| **simple pendulum**<br>/ˈsɪmpl ˈpendjʊləm/ | A **simple pendulum** is a small mass on a string. |
| **torsion pendulum**<br>/ˈtɔːʃn ˈpendjʊləm/ | A **torsion pendulum** twists back and forth on a wire. |



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