**Momentum Notes**

* All objects in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have momentum.
* NO MOTION = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Momentum – the product of an objects \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_.

**Formula for Momentum**:

* Momentum = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Units for momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Both Mass and Velocity are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to Momentum.
  + The greater the \_\_\_\_\_\_\_\_, the greater the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + The greater the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the greater the momentum

Which has more momentum?

* A 100 kg football player running at a speed of 2 m/s or a 60 kg football player running at a speed of 3 m/s?
  + Calculate:

**Conservation of Momentum**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_explains what happens when objects \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Definition: The total \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of any group of objects remains the \_\_\_\_\_\_\_\_\_\_ or is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unless \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ act on the objects.
* Examples of outside forces: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Collision with 2 moving objects – p. 398**

* Before the crash:
  + Blue car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Green car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Total momentum of both cars: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* After the crash:
  + Blue car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Green car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Total momentum of both cars: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* During the crash, the back car \_\_\_\_\_\_\_\_\_\_\_\_\_ its momentum to the front car and vise versa. Momentum is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Collision with one moving object – p. 398.**

* Before the crash:
  + Blue car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Green car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Total momentum of both cars: \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* After the crash:
  + Blue car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Green car momentum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Total momentum of both cars: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* During the crash, the back car \_\_\_\_\_\_\_\_\_\_\_\_\_ its momentum to the front car and vise versa. Momentum is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.