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## YouTubto Physics

1. Goto:
http://www.youtube.com/watch?v=t42JlWPoc_o\&feature=r elated

A Bugati Veyron accelerates from rest to $26 \mathrm{~m} / \mathrm{s}$ in 2.3 seconds.
a) What is the acceleration of the car?

b) What is the car's displacement during this time?
2. Goto:
http://www.youtube.com/watch? $\mathrm{V}=\mathrm{S} 20 y m H H y V 1 \mathrm{M}$
A red hartebeest spies a mountain biker and takes off from rest, accelerating at a rate of $2.0 \mathrm{~m} / \mathrm{s}^{2}$.
If the cyclist is 16 m away, how fast will he be going when he takes out the cyclist?

3. Go to: http://www.youtube.com/watch? $\mathrm{v}=\mathrm{pK}$ b72wcvF1w

If it took 2 seconds for the surfer to wipe-out, what was the height of the wave?

4. Goto:
http://www.youtube.com/watch?v=d7iYZPp2zYY\&feature=relat ed

During a head-on collision, a passenger in the front seat of a car accelerates from $13.3 \mathrm{~m} / \mathrm{s}$ ( $\approx 30$ miles/hour) to rest in 0.10 s .
a) What is the acceleration of the passenger?
b) The driver of the car holds out his arm to keep his 25 kg child (who is not wearing a seat belt) from smashing into the dashboard. Draw a force diagram for the child in the space to the right.
c) How much force must he exert on the child?
d) What is the weight (Force of Earth) of the child?
e) Convert these forces from $c$ ) and d) from $N$ to pounds. ( X $\frac{1 \mathrm{lb}}{4.45 \mathrm{~N}}$ ). What are the chances the driver will be able to stop the child?

