



1  
00:00:03,379 --> 00:00:01,819  
so here I want to illustrate the

2  
00:00:07,400 --> 00:00:03,389  
difference between static and dynamic

3  
00:00:09,650 --> 00:00:07,410  
forces a static force or a static load

4  
00:00:12,770 --> 00:00:09,660  
is just the weight of an object this

5  
00:00:15,829 --> 00:00:12,780  
hammer here weighs 10 pounds when I put

6  
00:00:18,740 --> 00:00:15,839  
it on top of this can let it just sit

7  
00:00:20,210 --> 00:00:18,750  
there there's a static force going down

8  
00:00:22,429 --> 00:00:20,220  
which is just the weight it's the force

9  
00:00:24,170 --> 00:00:22,439  
due to gravity and there's an equal

10  
00:00:25,519 --> 00:00:24,180  
force that's holding this back up so

11  
00:00:28,310 --> 00:00:25,529  
there's 10 pounds going down here

12  
00:00:29,990 --> 00:00:28,320  
there's 10 pounds going back up here now

13  
00:00:31,519 --> 00:00:30,000

I use soda cans like this because

14

00:00:34,190 --> 00:00:31,529

they're very strong I can support over a

15

00:00:36,430 --> 00:00:34,200

over a hundred pounds so here is

16

00:00:40,970 --> 00:00:36,440

supporting about one tenth of its actual

17

00:00:42,979 --> 00:00:40,980

actual load capacity now a dynamic force

18

00:00:45,709 --> 00:00:42,989

is the force that happens when something

19

00:00:48,319 --> 00:00:45,719

is moving and it hits something that is

20

00:00:50,479 --> 00:00:48,329

not moving and it has to either stop or

21

00:00:52,639 --> 00:00:50,489

go through that thing so in this case if

22

00:00:56,959 --> 00:00:52,649

I was to drop this hammer and if it was

23

00:00:59,569 --> 00:00:56,969

to land on that there's a force slowing

24

00:01:02,060 --> 00:00:59,579

down the hammer now that is a lot more

25

00:01:04,310 --> 00:01:02,070

than the actual force of 10 pounds of

26

00:01:07,460 --> 00:01:04,320

gravity this can can support a hundred

27

00:01:10,280 --> 00:01:07,470

pounds so if I was to drop this and it

28

00:01:13,460 --> 00:01:10,290

was to crush the can that means that the

29

00:01:14,810 --> 00:01:13,470

actual force is way more than 100 pounds

30

00:01:16,609 --> 00:01:14,820

so what I'm going to do is I'm gonna

31

00:01:22,480 --> 00:01:16,619

raise it up about two feet I'm gonna