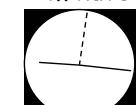
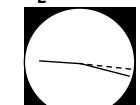


1 minute



14 1/2 minutes



1 minute



1 1/2 minutes



2 minutes



3 1/2 minutes



3 1/2 minutes



1 minute



10 1/2 minutes



3 minutes



2 1/2 minutes

Science Organization: Teacher takes attendance

The teacher takes attendance. He mentions the presence of the video camera and videographer, informing the class that they should act normally.

Whole-Class Seatwork: Class goes over answers to homework assignment

The class goes over the homework questions from section 6.2 of their textbook. The teacher reads aloud the questions and individual students respond orally.

Whole-Class Seatwork: Class develops new content information about moments of forces

The teacher proceeds with section 6.3 of the textbook. He asks for a student volunteer to come to the front of the classroom and push open the door at various points.

Whole-Class Practical Work: Student demonstrates moment of force on a door

A student opens the door by first pushing on the handle. Then the teacher instructs him to open the door another way, by pushing the door closer to the hinge. The student does this and notices more force is exerted.

Whole-Class Seatwork: Teacher leads discussion about moments of forces

The teacher describes what is happening in terms of force, stating that it is easier to open the door the further away you are to the pivot point [hinge]. He writes this information on the board and students copy it down in their notes.

Whole-Class Practical Work: Teacher demonstrates moments of forces with apparatus

The teacher has an apparatus in front of the classroom to demonstrate moments of forces. He prepares two different conditions where weights are hung at different points along one side of a rod; he asks students to determine where other weights need to be hung on the other side of the rod for there to be a balance. The teacher advances in level of difficulty with each condition.

Whole-Class Seatwork: Teacher leads discussion about moments of forces

The teacher records the data on the chalkboard and challenges students if they can see "a certain link" between the first and second conditions. The class engages in a discussion, whereby the teacher prepares a third condition using the same apparatus. However, this time he hangs three weights on one side of the rod (and at different distances from the pivot point), and has only two weights to hang on the other side. He asks the class if there are multiple ways to get the rod to balance, and if so, to write down different ways.

Independent Seatwork: Students work individually to determine values for moment of force

Students consider different ways to get the rod to balance in the third condition. They write their responses in their notes.

Whole-Class Seatwork: Class discusses moment of force and its formula

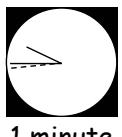
Students share their different values. The teacher clarifies some student confusion, going back to the three different conditions and explaining the values. He then announces to the class that they will think of a formula. He states, "This is physics, so we go back to formulas again." He describes what they did in terms of distance, force, and moment and writes on the board. He then provides the formula, $M = F \times d$ and talks about the appropriate units. Students copy the information in their notes. The teacher then writes a moment problem on the board about two people on a seesaw. He instructs students to work on their own, or quietly with a neighbor.

Independent Seatwork: Students work individually and in pairs on moment of force problem

Students work on answering the questions to the seesaw problem. The teacher walks around the room and checks on their progress. He reminds the class to try and use the formula. Some students are having difficulty so the teacher talks through the problem with them.

Whole-Class Seatwork: Class goes over answers to moments of force problem

The class goes over the answers to the moments problem by using the formula, $M = F \times d$. The teacher writes this formula on the board and asks students for certain values that they calculated. He explains what he is doing as he is solving the problem, emphasizing that the two students on the seesaw must have the same moment for the seesaw to be balanced.



1 minute

Whole-Class Seatwork: Teacher assigns homework

The teacher announces the homework assignment. He writes the information on the board and tells students to copy it down. They are then excused.