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CU S100/05 (1971).

Title : Science Course Unit 5

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A.J. Walton.

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Form VTR

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| Seq. | Time | Footage | Sequence List | Sound Cue |
|---|---|---|---|---|
| 1. | 1'27" | | Shot of M.J. Pentz with samples of ice, water, and steam.<br><br>He speculates on the forces that hold matter together and how they might be responsible for changes in state. | |
| 2. | 6'30" | | A.J. Walton illustrates the nature of the binding and repulsive forces which determine the state of matter - the kinetic energy. | |
| | 8'55" | | Walton uses a ball bearing analogue to simulate this on an atomic scale.<br><br>A tray with the ball bearings on it is vibrated more and more rapidly (increase in kinetic energy) until a state corresponding to the liquid state is reached. | |
| | 10'30" | | White ball bearings are added to illustrate the diffusion property of liquids.<br><br>Diffusion of real liquids is shown in a test tube. | |
| 3. | 12'10" | | Vibrations of the tray/ball bearing analogue are increased until a gaseous state is simulated.<br><br>Diffusion properties of gases demonstrated in a test tube and then with the ball bearing analogue. | |
| | 14'15" | | Velocities of moving molecules are shown on a photograph taken under strobe lighting.<br><br>Walton plots the distribution of ball bearing velocaties on a graph. | |
| | | | G.F. Elliott demonstrates the random movement of gaseous molecules using as an analogue an air cushion table and freely moving discs. The movement of the discs simulate Brownian motion. | |

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Continuation

| Seq. | Time | Footage | Sequence List | Sound Cue |
|---|---|---|---|---|
| 3. | 18'30" | | Shot of microscopic particles in Brownian motion. | |
| | | | Elliott performs an experiment to directly measure the distribution of molecular velocities of gases. | |
| | 22'35" | | Elliott prepares a water syringe analogue and uses it to explain the experiment. He also uses a diagram as an aid. | |
| | 25'00" | | Elliott performs the experiment. He takes only one reading. He then draws a hypothetical graph to show what the readings ought to have been, had he taken more.<br>Credits. | |