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| Kichwa cha Video | **Surface tension** | | | | |
| Mada | Chemistry | | | | |
| Malengo | Learn the nature of surface tension in water and its modifications with everyday objects. | | | | |
| Urefu | 45min | | | | |
| Mahali pa Kambi |  | | | | |
| Wawezeshaji |  | | | | |
| N. ya wanafunzi |  | | | | |
| Tarehe |  | | | | |
| Rasilimali  inahitajika | Set for each group of students: a glass or a cup, a plate, one stick, soap, water, coffee, black pepper. Both the plates and the water should be clean. | | | | |
| Maandalizi | None | | | | |
|  | | | | |  |
| **Muda wa video** | **Mwezeshaji anafanya nini** | | **Wanachofanya wanafunzi** | | **Comments** |
| 00:00 - 00:26 | Utangulizi Mkuu wa Video ya VMC | | | | |
| 00:26 - 00:31 | Utangulizi wa Video | | | | |
| 00:31 - 00:45 | Material | | | | |
| 00:46 - 01:24 | Utangulizi wa jaribio la kwanza | | | | |
| VIDEO PAUSE Experiment: Filling the glasses with water | * Kusaidia mchakato, kuchochea mawazo | | * Fill the glasses or cups up to the very top * Observe the effects of surface tension (curved water surface). * Discuss with the other learners why does this effect occur and if they have noticed it before in daily life. | |  |
| 1:31 – 3:26 | Introduction of the second experiment | | | | |
| VIDEO PAUSE Experiment: Modifying surface tension | * Kusaidia mchakato, kuchochea mawazo | | * Put a layer of water on top of the plates * Pour some black pepper or coffee on top of the water. Observe the uniform distribution of the particles * Put a drop of soap on the tip of the sticks * Touch the water surface with the stick * Observe the spreading of the particles, or, generally, the modification of their distribution | | * As coffees are mixtures and their composition can vary, some coffee can react poorly during the experiment. * After the experiment, the distribution of particles cannot be further modified with the same method. * To repeat the experiment, first, clean the plate thoroughly. |
| 3:31 - 3:33 | Invitation to discussion | | | | |
| VIDEO PAUSE Discussion: Why do the particles spread? | * Facilitate the discussion: why are the coffee/pepper particles pushed to the plate edge? What is the role of soap? * Suggestion for discussion: surface tension depends on water surface composition | | * Try out guesses and share ideas | | * Note: pepper or coffee are 'spectators' of the transformation, they serve only to visualize the change in surface tension. The transformation depends only on the soap addition to water. * Important message to deliver: the composition of substances can affect the appearance and properties of objects. The change in composition can manifest itself as a change in the object appearance |
| 3:40 – 4:36 | Experiment solution (part 1) | | | | |
| 4:36 – 4:47 | Invitation to discussion | | | | |
| VIDEO PAUSE Discussion: Where does the soap go? | * Facilitate the discussion * Suggestion for discussion: surface tension is a surface property | * Try out guesses and share ideas | | * Because of their chemical nature, some substances tend to concentrate in specific regions, while some others simply spread randomly | |
| 4:54 – 6:15 | Experiment solution (part 2) | | | | |
| 6:15 – 6:36 | Conclusion | | | | |