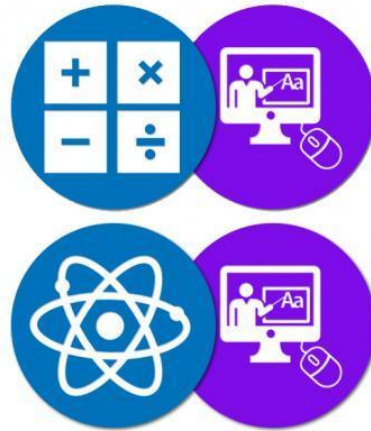


# Повышение качества знаний учащихся через применение интерактивных заданий и рабочих листов на уроках физики



**Давайте познакомимся...**

Бижанова Динара Арстамбаевна

Учитель физики

НИШ ФМН г. Нур-Султан

# Интерактивные рабочие листы

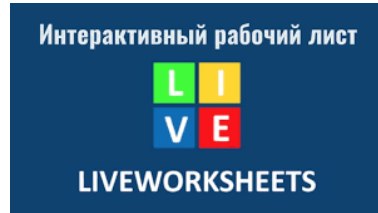
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# О чем выступление?



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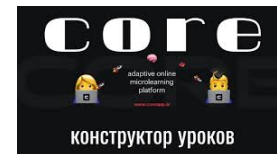
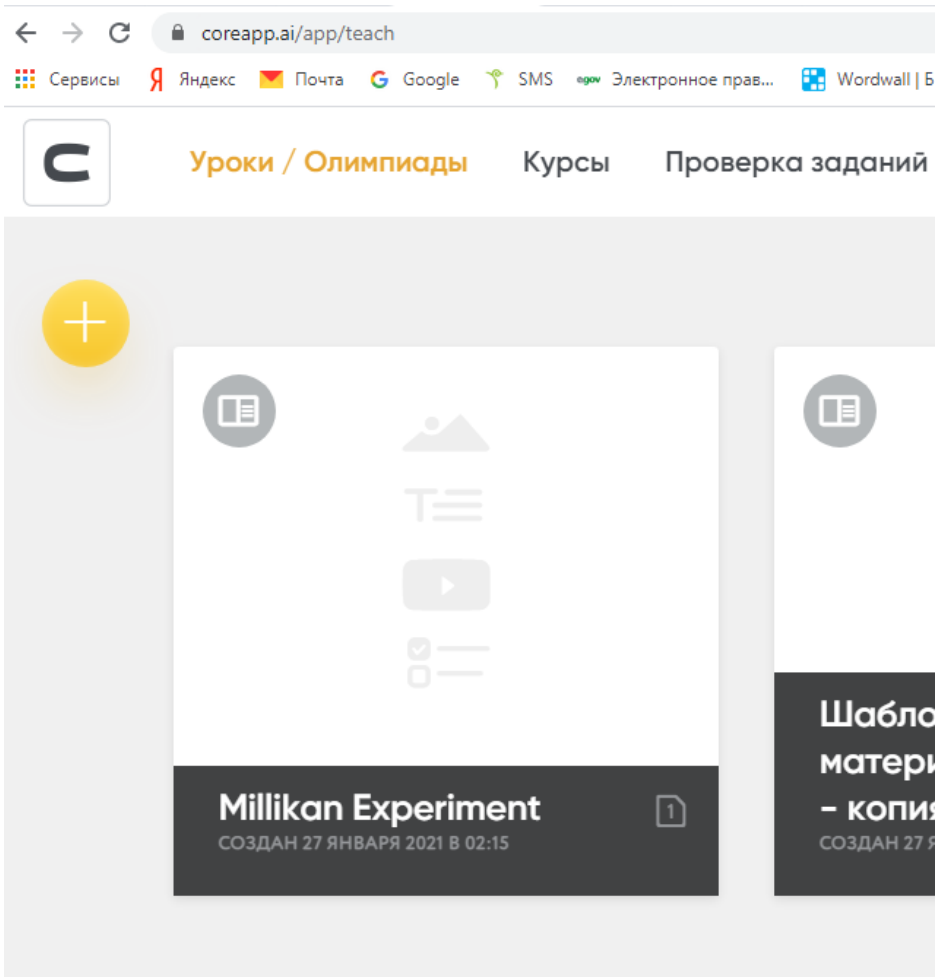


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## Millikan experiment

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### Millikan's oil-drop experiment

British physicist JJ Thompson had measured the ratio of a) \_\_\_\_\_ to the b) \_\_\_\_\_ of an electron using a cathode ray tube in c) \_\_\_\_\_. Later Millikan looked to determine the charge on the electrons. The famous method that he devised between 1906 and 1914 to measure the charge of an electron is known as the Millikan's oil-drop experiment, using this method he calculated that d) \_\_\_\_\_ on an electron was about  $1.6 \times 10^{-19}$  coulombs. In the Millikan's oil drops method an atomizer produces oil droplets in the form of mist which are sent through a plate of electrical condenser. There are different forces, which act on the oil-drop including gravitational, e) \_\_\_\_\_ due to electric field and viscous drag force.

The rate at which these drops fall were measured by observing them through a micrometer eyepiece of a telescope, x-rays were passed through the f) \_\_\_\_\_ to ionize the air inside, on colliding with gaseous ions these oil droplets acquire charge. The rate at which these droplets fall can be controlled by changing the strength of applied g) \_\_\_\_\_ to the plate. With this experiment, he observed that the magnitude of electrical charge  $Q$  on the droplets is always a multiple of electrical charge  $e$ . That is  $Q$  is equal to  $ne$  where  $n$  is equal to 1 2 3 and so on using the value of charge of the electron the mass of the electron  $m_e$  was then determined by h) \_\_\_\_\_ Thomson's value of  $e$  by  $m$  ratio the value shown is the value of the mass of an electron.

the charge, voltage, combining, 1897, mass, electrostatic force, electrical charge, chamber

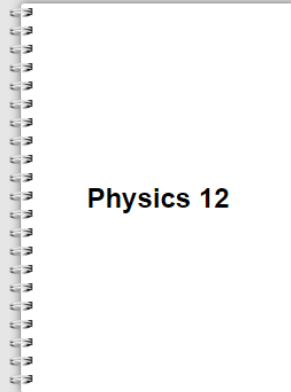


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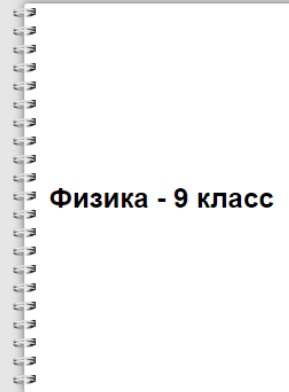
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$$Q = qm$$

$$Q = rm$$

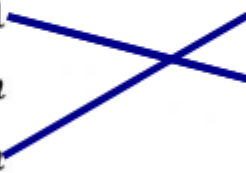
$$Q = mc(t_2 - t_1)$$

Плавление

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## Millikan experiment

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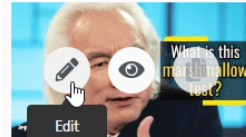
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