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## INTERDISCIPLINARY CONNECTION IN TEACHING THE SUBJECT OF CURVED LINE MOVEMENT

*Annotation: The introduction of interdisciplinary links in the teaching of physics helps to form a deep and solid knowledge in students.*

*Key words: mass, energy, matter, field, energy, conservation law, motion, centripetal acceleration.*

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## МЕЖДИСЦИПЛИНАРНАЯ СВЯЗЬ В ПРЕПОДАВАНИИ ПРЕДМЕТА ДВИЖЕНИЕ ПО КРИВОЙ ЛИНИИ

*Аннотация: Внедрение межпредметных связей в преподавание физики способствует формированию у учащихся глубоких и прочных знаний.*

*Ключевые слова: масса, энергия, вещество, поле, энергия, закон сохранения, движение, центростремительное ускорение.*

**Introduction:** The organization of lessons on the basis of interdisciplinary connections helps students to form a scientific outlook and polytechnic

education. In solving any physical problem, of course, mathematical calculations are performed. At the same time, it is necessary to emphasize the connection between physics and mathematics.

**The main part:** Two ideas are given that are necessary for the introduction of interdisciplinary connection: a basic phenomenon, a concept, a theory, and a single interpretation of laws. The general approach to the coverage of single terminology, mass, energy, matter, field, quantum-mechanical concepts, conservation laws, space-time concepts are used uniformly throughout the course of physics. First of all, the teacher can make extensive use of students' knowledge of mathematics and geometry. For example, as described above, the similarity of triangles is used first to formulate the acceleration formula for the center, and then the parallelogram rule is used to add the vector. Without geometric concepts such as circle segment, arc, angle, this topic cannot be explained.

In solving any physical problem, of course, mathematical calculations are performed. It is important to emphasize the connection between physics and mathematics, because the importance of mathematics as a scientific method is very broad and significant in the teaching of physics; The laws of physics are represented by mathematical formulas, graphical connections, are used to draw conclusions from the laws of physics, to prove some cases of physics, to solve problems, to use mathematical expressions in laboratory work.

In the coverage of this topic, it is mentioned that rotational motion is a condition for the existence of celestial bodies, and these concepts are reflected in the science of "Celestial Mechanics". It is necessary to explain that the laws of interaction of celestial bodies, the conditions of equilibrium occur on the basis of centripetal, centrifugal accelerations and the mutual equality of forces generated by these accelerations. These concepts are proof of the connection between physics and astronomy. It is known that Newton's second law

$$\text{if } F = ma \text{ да, } a = \frac{v^2}{R},$$

The formula is as follows  $F = m \frac{v^2}{R}$

takes over, and this force is called the centripetal force. This force is the gravitational force of the whole universe

$$F = \gamma \frac{Mm}{R^2}$$

is equal to

$$m \frac{v^2}{R} = \gamma \frac{Mm}{R^2}.$$

This equality is a condition for the equilibrium of interacting celestial bodies, such as the Earth-Moon, Earth-Sun systems. It is clear from this that the acceleration of the aspiration to the center is a condition for the existence of this universe. Based on the above equation, the value of the gravitational constant, ie the gravitational constant ( $\gamma = 6,67 \cdot 10^{-11} \frac{Nm^2}{kg^2}$ ) can be calculated .

The force of aspiration to a center is the weight of the body

$$P = mg$$

equal to,

$$m \frac{v^2}{R} = mg$$

will be. The first cosmic velocity from the resulting equation

$$v = \sqrt{gR}$$

or the value of the free fall acceleration  $g$  can be determined.

In order to strengthen the knowledge of students on the subject of acceleration of aspiration, the center should be given the concepts of "load" and "weightlessness" as a task for independent work . Such cases reduce the weight of the vehicle moving on convex and concave bridges. This is because a body moving along a convex arc is affected by a centrifugal force. An amount equal to this amount of power causes the car to lose its weight. This is due to centrifugal acceleration .

$$P = P - F$$

or

$$P = mg - m \frac{v^2}{R} = m(g - \frac{v^2}{R})$$

If the bridge is sunken, the bridge will be subjected to a compressive force greater than the weight of the body

$$P = P + F$$

or

$$P = mg + m \frac{v^2}{R} = m(g + \frac{v^2}{R})$$

This is because centripetal force or centripetal acceleration. This is why bridges are made convex so that they can carry more load .

**Conclusion:** It is necessary to pay attention to interdisciplinary problems when choosing issues on the topic. That is, it will be necessary to choose issues that are specific to the problematic situations encountered in nature, in production. At the same time, solving problems helps to strengthen the acquired knowledge and understanding, ensures the integration of problems with life, techniques and technologies.

#### **References:**

1. Akhmadzhonova, Y. T., & Akhmadzhonova, U. T. (2021). "Press conference" in the delivering of chemistry. Экономика и социум, (3-1), 20-22.5.
2. Yaxshiyeva, Z. Z., Axmadjonova, Y. T., & Axmadjonova, U. T. (2021). Evaluation of the quality of education is studied on the basis of foreign experience. Integration of science, education and practice. Scientific-methodical journal, 383-385.
3. Axmadjonova, Y. T., & Axmadjonova, U. T. (2021). Development of agroindustrial complex. Development issues of innovative economy in the agricultural sector, 761-763.
4. Juraeva, N. M., & Akhmadjonova, W. T. (2020). Superconducting fullerenes and their application in biophysics. Academic journalism,(2), 12-14

5. Axmedovna, S. S., & o rqiroy Tojimurodovna, A. Y. (2021). PISA a criteria for improving the quality of education. *Galaxy International Interdisciplinary Research Journal*, 9(05), 306-308.
6. Жураева, Н. М., & Ахмаджонова, У. Т. (2021). Использование творческой работы в кругах. *Экономика и социум*, (3-1), 552-555.
7. Yaxshiyeva, Z. Z., Axmadjonova, Y. T., & Axmadjonova, U. T. (2021). Ta'lim sifatini baholash xorij tajribasi misolida o 'rganilmoqda. Integration of science, education and practice. *Scientific-methodical journal*, 383-385.
8. Жўраева, Н. М., & Ахмаджонова, У. Т. (2020). Сверхпроводящие фуллерены и их применение в биофизике. *Академическая публицистика*,(2), 12-14.
9. Axmadjonova, Y. T., & Axmadjonova, U. T. (2021). O'quv dars mashg'ulotlarida didaktik o'yin texnologiyalaridan foydalanish. *Science and Education*, 2(11), 977-984.
10. Муртазин, Э. Р., Ахмеджанова, У., & угли Абдурахманов, Э. М. (2016). Расчёт мощности ветроэлектродвигателя. *Ученый XXI века*, (3-1).
11. Ахмаджонова, Ё. Т. (2021). PISA: «Студентов нужно научить думать, а не запоминать». *Гуманитарный трактат*, (101), 12-14.
12. Axmadjonova, Y. T., Axmadjonova, U. T., & Yaxshiyeva, Z. Z. (2021). Ta'lim sifatini baholash sohasidagi xalqaro tadqiqotlarni tashkil etish chora-tadbirlari. *Academic research in educational sciences*, 2(CSPI conference 1), 1563-1567.