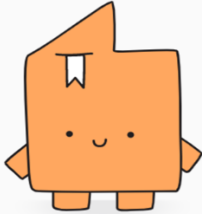



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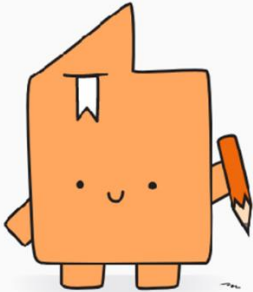


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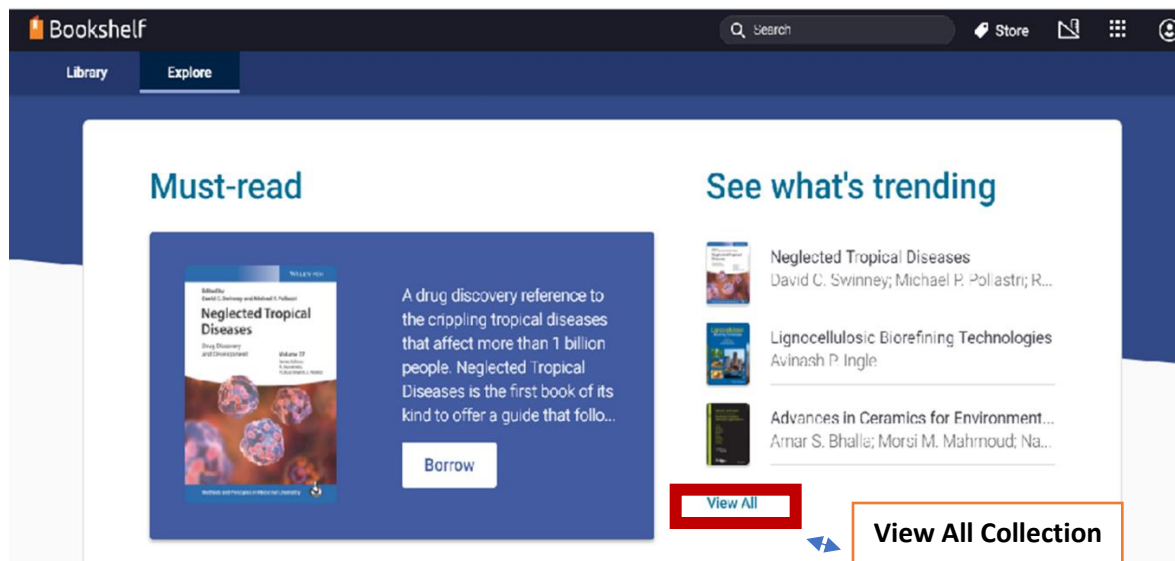
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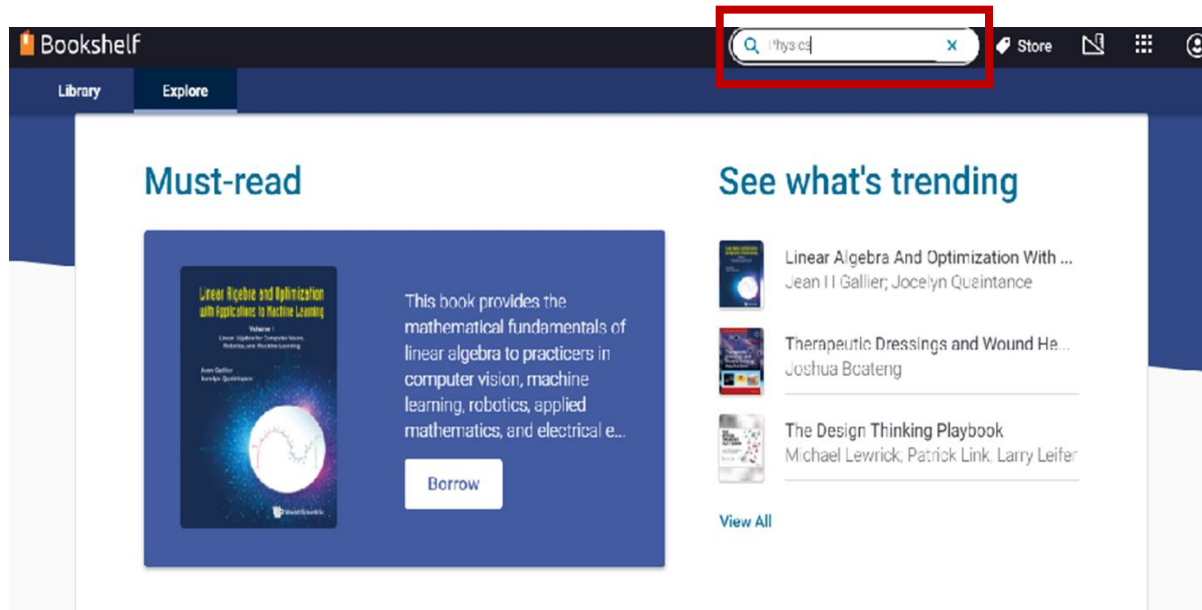
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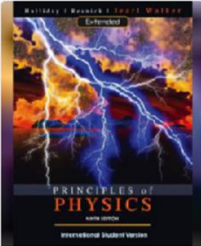
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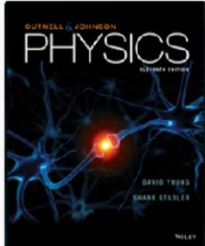
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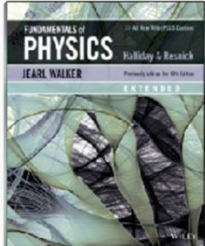
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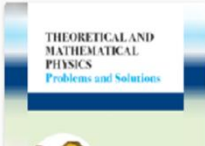
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


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## Making Highlights and Notes

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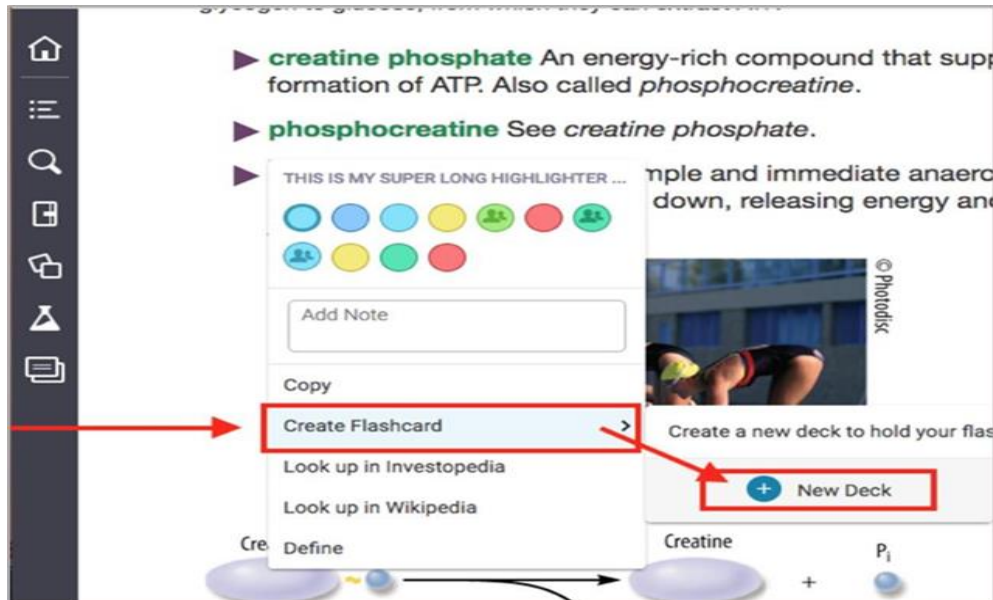
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**9-1 WHAT IS PHYSICS?**  
Every mechanical engineer hired as an expert witness to reconstruct a traffic accident uses physics. Every trainer who coaches a ballerina on how to leap uses physics. Indeed, analyzing complicated motion of any sort requires simplification via an understanding of physics. In this chapter we discuss how the complicated motion of a system of objects, such as a car or a ballerina, can be simplified if we determine a special point of the system—the *center of mass* of that system.  
Here is a quick example. If you toss a ball into the air without much spin on the ball (Fig. 9-1a), its motion is simple—it follows a parabolic path, as we discussed in Chapter 4, and the ball can be treated as a particle. If, instead, you flip a baseball bat into the air (Fig. 9-1b), its motion is more complicated. Because every part of the bat moves differently, along paths of many different shapes, you cannot represent the bat as a particle. Instead, it is a system of particles each of which follows its own path through the air. However, the bat has one special point—the center of mass—that *does* move in a simple parabolic path. The other parts of the bat move around the center of mass. (To locate the center of mass, balance the bat on an outstretched finger; the point is above your finger, on the bat's central axis.)

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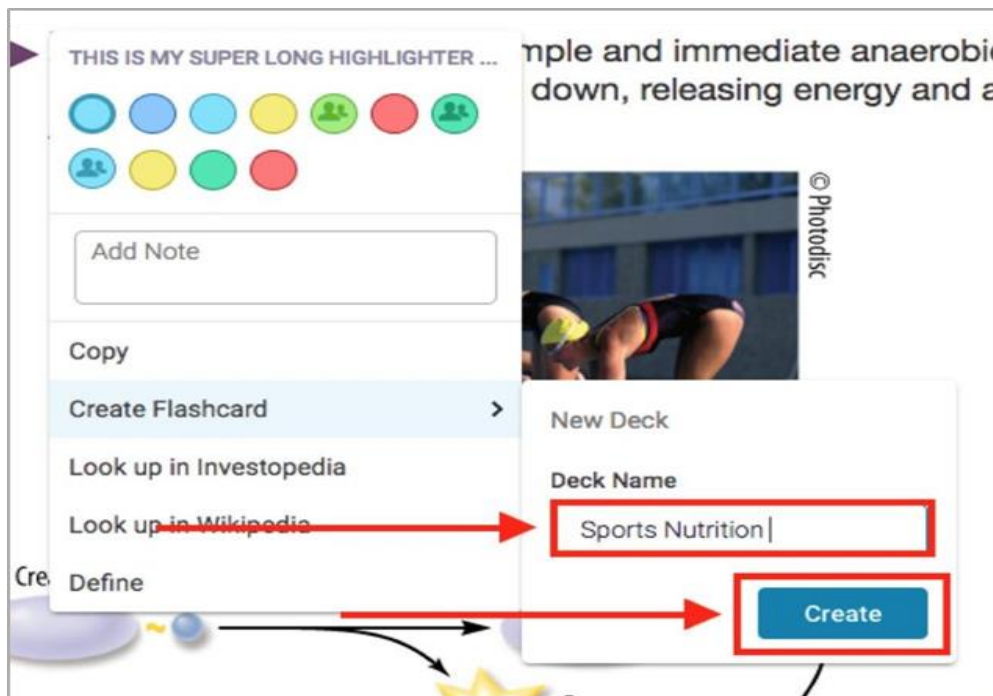
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Create Flashcard

Select Text > Create Flashcard >  **New Deck**

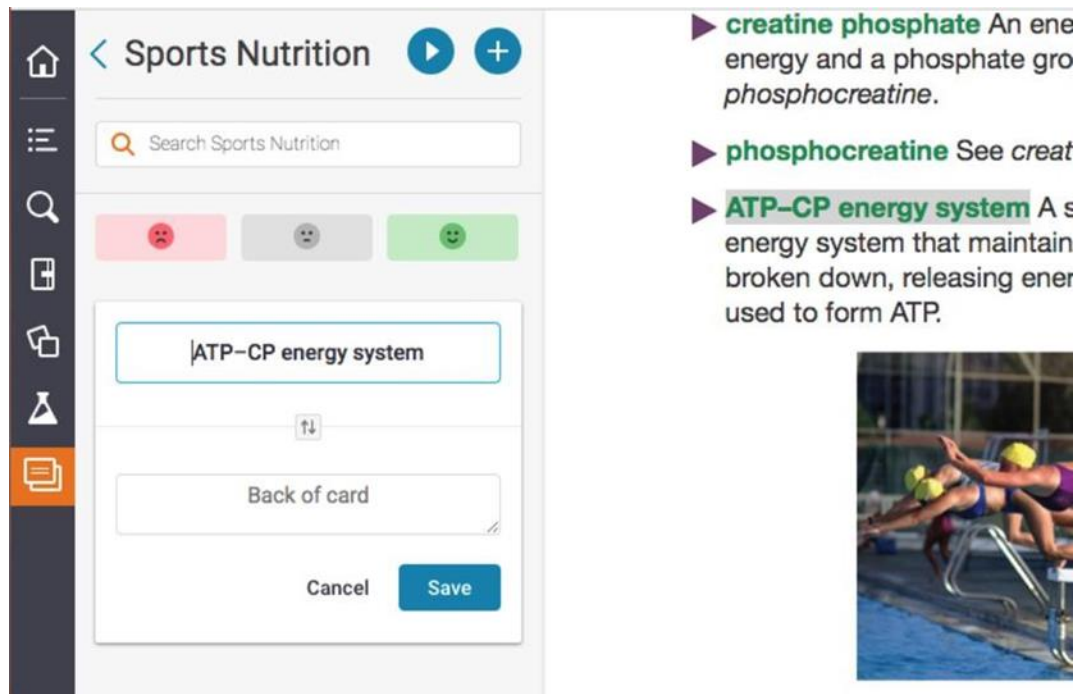


Enter your deck name and click **Create**





The Deck will open, and a **Flashcard** will be added based on your selected text

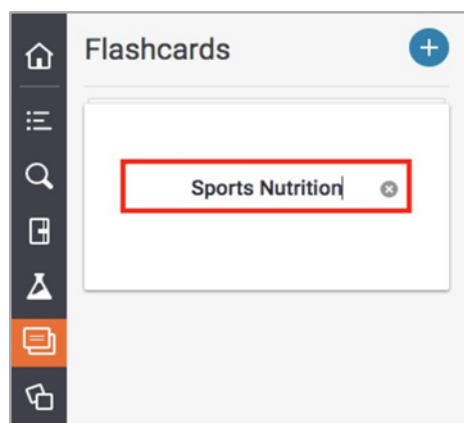


The screenshot shows the 'Sports Nutrition' app interface. On the left is a dark sidebar with icons for home, list, search, document, folder, and a highlighted 'flashcards' icon. The main area has a header 'Sports Nutrition' with a back arrow, a play button, and a plus button. Below is a search bar 'Search Sports Nutrition'. Three mood buttons (sad, neutral, happy) are visible. A card editor is open, showing the front of a card with the text 'ATP-CP energy system'. Below it is a section for the 'Back of card' with a text input field and 'Cancel' and 'Save' buttons. To the right of the app interface, there is a list of text snippets with green arrows pointing to them:

- **creatine phosphate** An ene energy and a phosphate gro phosphocreatine.
- **phosphocreatine** See creat
- **ATP-CP energy system** A s energy system that maintain broken down, releasing ener used to form ATP.

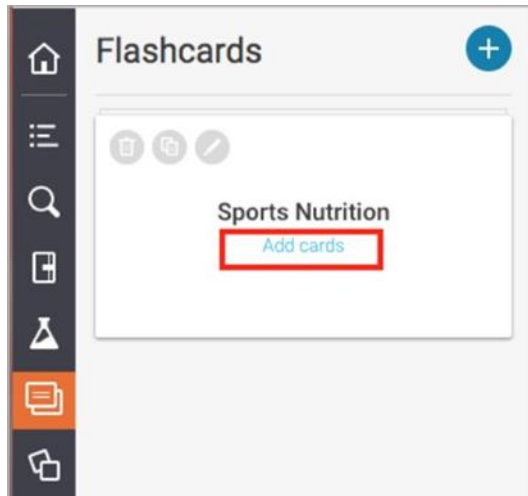
Below the list is a photograph of two swimmers in a pool, one in the foreground and one slightly behind, both wearing yellow swim caps and purple swimwear, in a starting position.

Name your Deck, click **Create**.



The screenshot shows the 'Flashcards' app interface. On the left is a dark sidebar with icons for home, list, search, document, folder, and a highlighted 'flashcards' icon. The main area has a header 'Flashcards' with a plus button. Below is a text input field containing 'Sports Nutrition' with a red rectangular highlight around it and a small 'x' icon to its right.

Click **Add cards** to get started adding to your deck.













**Copy and paste** content at the text or create your own material

A screenshot of the Flashcards app in edit mode. The left sidebar is visible. The main area shows a card titled 'ATP-CP energy system' with a text description: 'A simple and immediate anaerobic energy system that maintains ATP levels. Creatine phosphate is broken down, releasing energy and a phosphate group, which is used to form ATP.' The text is highlighted with a red box. Below the text are 'Cancel' and 'Save' buttons, with the 'Save' button also highlighted by a red box. A red arrow points from the 'Save' button to the text box. To the right of the card editor, there is a list of definitions: '► creatine phosphate An energy-rich compound that supplies energy and a phosphate group for the formation of ATP. Also called phosphocreatine.', '► phosphocreatine See creatine phosphate.', and '► ATP-CP energy system A simple and immediate anaerobic energy system that maintains ATP levels. Creatine phosphate is broken down, releasing energy and a phosphate group, which is used to form ATP.' Below the text is a photograph of swimmers at a pool starting race, credited to '© Photodisc'. At the bottom is a diagram showing 'Creatine phosphate' (a purple oval with a yellow dot) converting to 'Creatine' (a purple oval) and 'P<sub>i</sub>' (a small blue circle with a white 'P' and a subscript 'i').



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