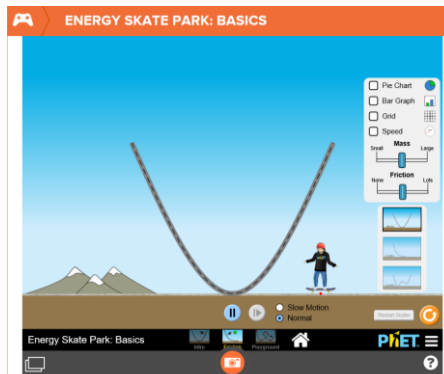


eREAP – BrainPOP Teaching Ideas

In this lesson, students can understand the conversion of potential and kinetic energy by the simulation game [Energy Skate Park: Basics](#).



Suggested Lesson Plan

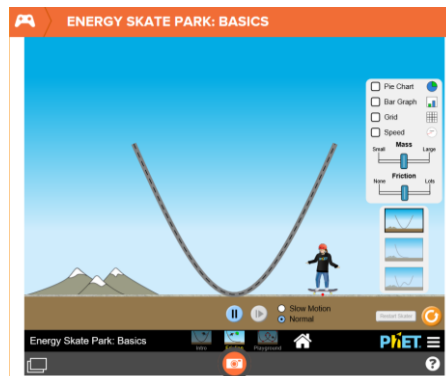
Objectives	<p>Students will:</p> <ul style="list-style-type: none"> ● Learn/revise the concepts of energy, conservation of energy, kinetic energy potential energy, friction ● Observe and explain the relationship among mass, position, speed and energy ● Make evaluations upon their observation
Lesson 1 activity (before holiday)	<ol style="list-style-type: none"> 1. [5 mins whole class] Warm up: <ul style="list-style-type: none"> ● Log in to BrainPOP, and go to the simulation game Energy Skate Park: Basics. ● Ask the students what elements they can see (skate player, track, different criteria/buttons, etc.) 2. [10 mins whole class] Discussion: <p>Ask students to come up and try the game, and summarise what they think the game is. Ask questions to let students think and try more:</p> <ul style="list-style-type: none"> ● What variables would you like to adjust? ● What do you expect to happen when adjusting these variables? ● What do you want to display on the screen? ● What do you consider a good experiment? What result do you expect? ● What conclusion can you draw from the experiment? 3. [2 mins whole class] Introduce SnapThought: <p>Click on the Bar Graph. Show how to use SnapThought for screenshot. Click the picture(s) at the bottom right corner, and enter words for reflection.</p> 4. [5 mins whole class] Announce mission: <ul style="list-style-type: none"> ● Ask students to try the 'Friction' and 'Playground' sections, adjust different variables, take 2 screenshots for each section. They should also write down their observation and explain the relationship between these variables and energy. ● Ask students what they think is the ideal skate track/roller coaster track design. Encourage them to think about it and collect information (e.g. real examples around the world), and share after holiday.

	<ul style="list-style-type: none">● Remind students to click 'Submit to Teacher' and select the correct class to submit.
Lesson 2 activity (after holiday)	5. Share students' screenshots and sharing. Discuss whenever necessary. Invite students to talk about their ideal design of skate track/roller coaster track.
Tips	<p>Encourage students to master the concepts through multiple attempts of testing.</p> <p>Other simulation games:</p> <ul style="list-style-type: none">➤ Balancing Act➤ Color Vision➤ Concentration➤ Wave on a String➤ Molecules and Light

For more teaching resources and ideas about this game, please visit the [BrainPOP Educators](#).

eREAP – BrainPOP 參考教案

在這個 [Energy Skate Park: Basics](#) 模擬實驗中，學生將能學到動能與勢能之間的轉換等概念。



參考教案

目標	學生將會： <ul style="list-style-type: none"> ● 認識/溫習能量、能量守恆、動能、勢能、摩擦等概念 ● 觀察及解釋質量、位置、速度和能量之間的關係 ● 就觀察所得作出評價
第一次課堂活動 (假期前)	<ol style="list-style-type: none"> 1. [5 mins 全班] 切入課題： <ul style="list-style-type: none"> ● 教師登入 BrainPOP，進入 Energy Skate Park: Basics 能量模擬實驗的頁面。 ● 問學生觀察到版面有什麼元素（滑板玩家、軌道、不同選項顯示選項等） 2. [10 mins 全班] 討論： 教師邀請個別學生上前嘗試，然後讓學生分享他們探索所得的遊戲玩法。教師可在過程中提問，鼓勵學生多作嘗試，例如： <ul style="list-style-type: none"> ● 你會調較哪些變數？ ● 你認為調較這個變數會發生什麼事？ ● 你會在版面上顯示什麼資訊？ ● 你認為怎樣才算是好的實驗？你期望得到什麼樣的結果？ ● 你從實驗中能得出什麼結論？ 3. [2 mins 全班] 介紹 SnapThought 用法： 點按 Bar Graph 功能，並示範使用 SnapThought 截取圖片。點按右下角圖片鍵，在圖片下輸入文字。 4. [5 mins 全班] 交代任務： <ul style="list-style-type: none"> ● 著學生在「Friction」和「Playground」模擬實驗中，嘗試調較不同的變數，並在各實驗中截取 2 張圖片，以文字加以闡述這些變數和能量之間的關係。 ● 問學生理想中的滑板軌道/過山車軌道設計，請他們思考及搜集簡單資料（例如世界各地的實際例子），於假期後分享。 ● 提醒學生完成後必須點按「Submit to Teacher」，揀選適當班別遞交。

第二次課堂活動 (假期後)	5. 假期結束後，與學生一同查看他們遞交的股份，按需要作更深入的討論。又，在課堂上邀請學生分享理想中的滑板軌道/過山車軌道設計。
小貼士	教師可鼓勵學生藉反覆實驗，來掌握課題的重要概念。 其他實驗遊戲： <ul style="list-style-type: none">➤ Balancing Act➤ Color Vision➤ Concentration➤ Wave on a String➤ Molecules and Light

如希望獲得更多有關本遊戲的教材和教學點子，請瀏覽 [BrainPOP Educators](#)。