The Science Behind PIXAR

彼思動畫的科學秘密

30.7 - 1.12.2021

趣味習作

Activity Sheet

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學習新詞彙
Learning New Vocabs

在每個展區中找出一個術語，並用簡短句子和/或繪圖形容。

Look for a technical word in each section and describe that word with a simple sentence and/or drawing.

建構模型
Modeling

建立骨架結構
Rigging

建構表面
Surfaces

布景與攝影
Sets & Cameras

角色動作製作
Animation

模擬
Simulation

燈光
Lighting

成像製作
Rendering

尋找形狀！
Searching for Shapes!

在展覽中找出不同形狀的例子，並在下面空格寫上形狀名稱和畫出形狀。
Find examples of different shapes in the exhibition. Name and draw the shape.

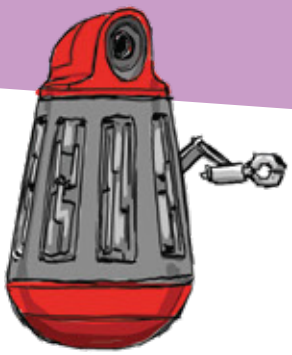
形狀名稱
Name of Shape

形狀名稱
Name of Shape

形狀名稱
Name of Shape

形狀名稱
Name of Shape

試用你找到的形狀畫出一個角色：
Draw a character that uses the shapes you found:



彼思的團隊合作
Collaboration in Pixar

美術、科技、科學、數學、電腦科學和創意在動畫製作中是息息相關的。在下面空格，以展覽的例子解釋以下範疇如何簡化或解決彼思遇到的問題。

Art, technology, science, math, computer science, and creativity are inseparable in animation. In the spaces below, explain with examples from the exhibition how each area has been used to simplify or solve a problem faced by the Pixar team.

美術
Art

數學
Math

科技
Technology

電腦科學
Computer Science

科學
Science

創意
Creativity

你能為彼思動畫作出哪一方面的貢獻？如何做到？
Which of these areas could you contribute to on a Pixar film? How?

彼思的職業
Careers in Pixar

製作彼思電影牽涉到不同崗位間的合作。參觀各個展區並觀看介紹這些崗位的影片。

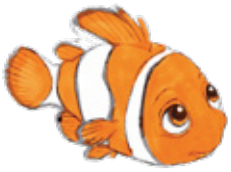
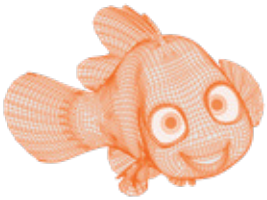
The making of Pixar films involves the collaboration of many different people with unique roles. Check out each exhibition area and look for a video describing someone's job at Pixar.

從展覽介紹中選擇並寫上一個你最喜歡的職業。

Choose and write down a career represented in the Pixar exhibition that you love.

他/她在製作彼思動畫時的工作是甚麼？

What does this person do in his or her job making Pixar films?


這工作需要甚麼技能？

What skills are required for this person to do his or her job at Pixar?

為甚麼這工作會使你感興趣或驚喜？

Why does this job interest or surprise you?

做一做、想一想（一）
Do and Think (1)

嘗試在**建立手臂骨架結構工作站**改變手臂骨架結構的動作範圍。當改變了骨架結構中「節」的數量，你會發現手臂的動作有甚麼改變？

製作手臂動作時涉及哪些人體系統？學習人體結構如何幫助創作虛擬怪獸？

Use **Arm Rigging Workstation** to change the range of motion for an arm rig. What do you notice about the movement when you change the number of segments?

Which human body systems are involved in creating the motion of the arm? How would a study of the human body inform the creation of a virtual “monster”?

做一做、想一想（二）
Do and Think (2)

建模師利用一些數學方法，包括繞着軸桿轉動和沿着路徑滑動二維形狀以創造三維物件。

試在**轉出形狀**和**拉出形狀**創造你的三維物件，並把你的成品畫下來。

Rotating around an axis and sliding along a path are the mathematical techniques modelers use to create 3D objects from 2D shapes.

Create your 3D objects at **Rotated Shapes** and **Extruded Shapes**. Draw your work.

做一做、想一想（三）
Do and Think (3)

利用**水的模擬**去模擬液體的流動。用速寫或圖像紀錄不同的模擬效果。

設計師要研究和學習甚麼，才能製作逼真的模擬效果？

Use **Simulating Water** to model the motion of a fluid. Document different simulations of water through sketches or pictures.

What did the designers study in order to model believable effects?

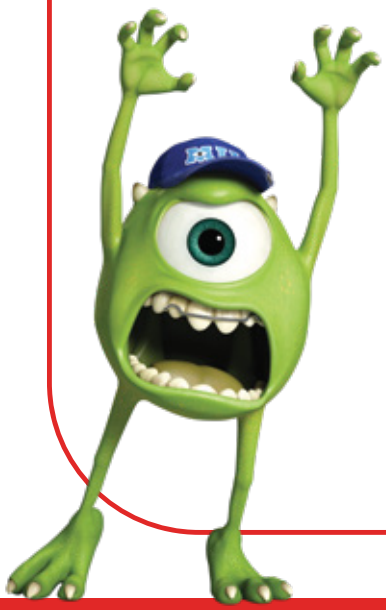
做一做、想一想（四）
Do and Think (4)

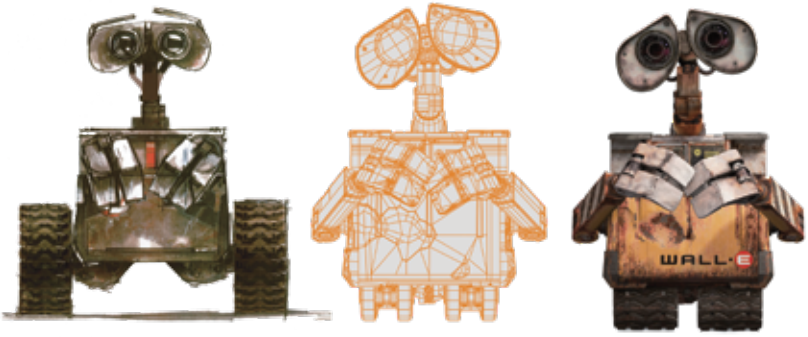
在**電腦角色動作製作工作站**中，你可透過改變影格的數目調校大眼仔揮手時間的長度。在哪一個設定下大眼仔的揮手是最慢的？

彼思動畫的標準影格率是每秒二十四影格，一部電影的長度如果是九十分鐘，總共有多少影格？你可以列出算式並計算出來嗎？

At **Computer Animation Workstation** make Mike Wazowski wave for different lengths of time by changing the number of frames. Which setting creates the slowest wave?

Pixar uses the standard rate of 24 frames per second. If a movie is 90 minutes long, how many frames is that? Can you write the equation and solve it?





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Fully supported by The Walt Disney Company (Hong Kong) Limited

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Leisure and Cultural Services Department

LCSD edutainment CHANNEL 康文署寓樂頻道

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香港科學館
HONG KONG SCIENCE MUSEUM

展覽製作
Produced by

Museum of Science.

Produced by Hong Kong Science Museum (014/2021)