

UCF CENTER FOR RESEARCH IN COMPUTER VISION

Lung Cancer Screening & Computer Aided Detection

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LUNG CANCER

is the biggest cancer killer in both men and women.

Every year, about **200,000** people are diagnosed and **150,000** people die.

Cigarette smoking is the **#1 cause of lung cancer.** It is linked to **80% to 90%** of all lung cancers.



Quitting smoking at any age can lower the risk of lung cancer.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



Biomedical Imaging Lung Cancer

7 x 45 min lessons



Engage

Introduction to UCF CRCV Current Research



Explain

Scaffolds



Explore

Lesson 3 Wednesday



3-D Slicer In Class Guided Tutorial

Lesson 4 Thursday



Students use 3-D slicer. Send to 3D Print



DNA Microarray NIH Blast Database

Lesson 5 Friday

Additional Screening

Lesson 1 Monday "Activity before concept, concept before vocabulary"

Lesson 2 Tuesday



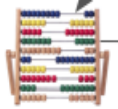
Evaluate

Student Present Mini-Posters

Lesson 7 Tuesday Invite UCF CRCV Faculty



Elaborate



Cancer Statistics "Mythbusters" (15 mins)

Staging Overview (30 mins)

"I do, we do, you do"



X-Ray Transparencies Staging in Neon(30 mins)

Compare (15 mins)

Lesson 6 Monday



Design Diagnosis Plan Extend Research

Lesson Plan

Day 1

Introduction

- Cancer Mythbusters Activity
- Staging Lung Cancer

Day 2

Engage

- X-Ray Transparencies “Staging in Neon”
- Collect Data

Day 3

Explain

- In-class walkthrough of segmentation using 3-D Slicer

Day 4

Explore

- Use 3D slicer to segment lung nodule
- Compare data between human vs computer vision

Day 5

Elaborate

- Introduce students to research articles comparing different screening methods.
- Further analysis conducting DNA microarray “confirmation” test.
- Create a lung cancer early detection and confirmation diagnosis plan?

Day(s) 6-7

Evaluate

- Mini-poster presentations outlining cancer detection and confirmation plans
- Analyze pros/cons and why they chose their method based off of existing research.
- Invite industry experts and UCF faculty.

Field Trip

Extend

Career Connection visit to UCF CRCV w/ AP CSP