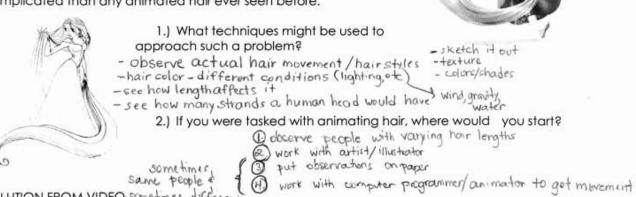
SOLVING PROBLEMS WITH COMPUTERS

Computer science is more than just the study of different programming languages or hardware parts. In most computer science careers, specialists use computer science thinking techniques to solve problems and puzzles and achieve specific goals.

In this activity, you will be presented with a set of real-world problems and goals that computer programmers, computer animators, and more, challenge themselves with each day. For each problem, we will discuss it, brainstorm ideas for addressing it, and then watch a video that presents one possible solution.

PROBLEM A: ANIMATING RAPUNZEL'S HAIR

Although film animations were once hand-drawn, the entertainment industry has switched to using computers for drawing. While this works well for most objects, some challenges arose when animators were asked to create some more complicated structures. In Disney's Tangled, animators were asked to create the main character Rapunzel's unusually long, golden hair, which was much more complicated than any animated hair ever seen before.



SOLUTION FROM VIDEO sometimes different While watching the video, answer the following questions:

What steps did they use to approach the problem?

- -studied real hair (observations) = expert had PHD in hair simulation (computer science)
- = research Physics of the hair, formular for calculating weight } mathematicians + scientists simulations (3D simulations with the 173 strands)
- Did they make any significant choices or compromises in animating the hair?
- hair was 6080 founds (she couldn't carry that in mal life)
- -friction on the ground-hair could get caught
- -affects movement -average head of hair has 100,000 strands (they animated 173)
- Could similar approaches be used elsewhere?

