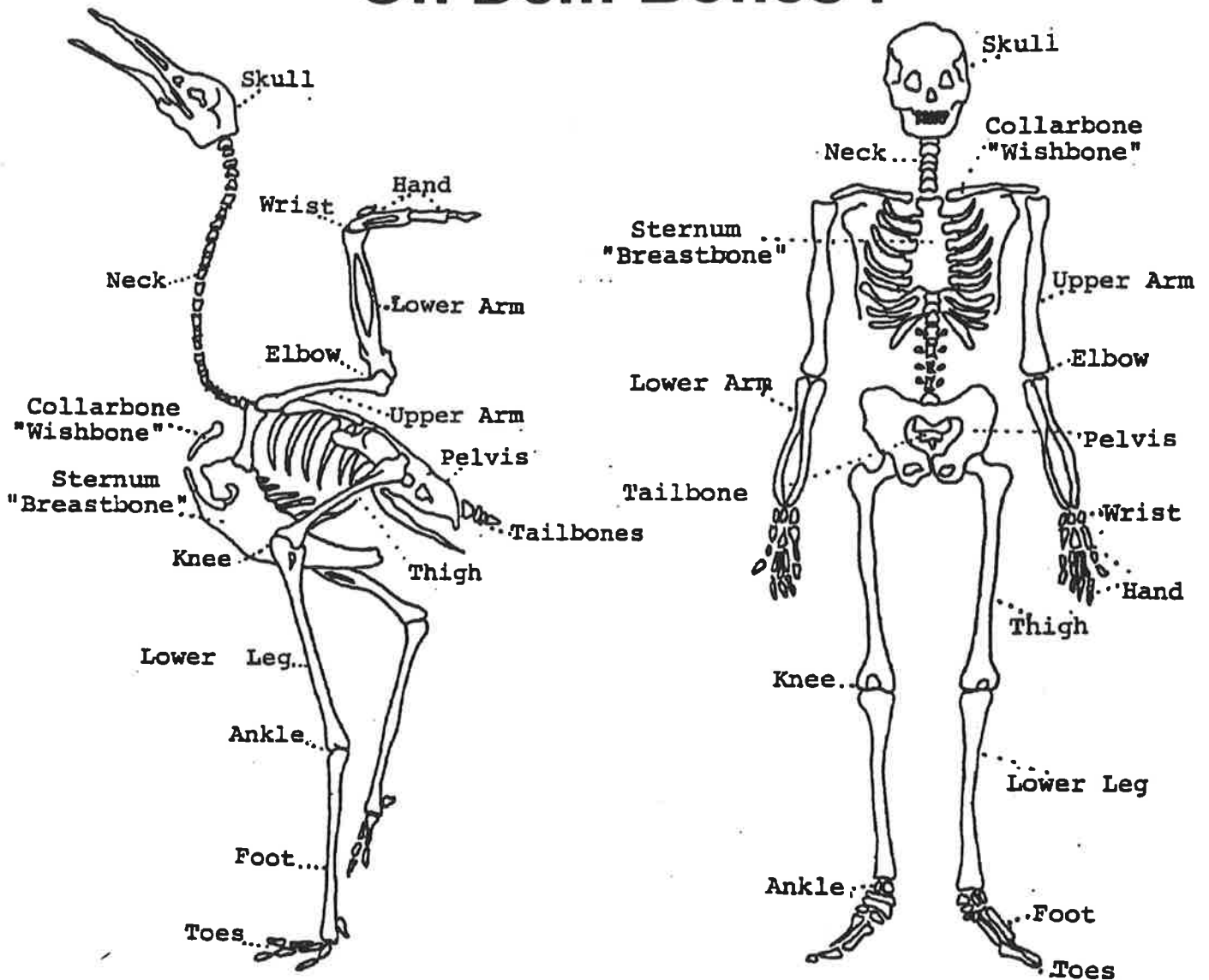


# Oh Dem Bones !



Crane and human skeletons are very much alike, but there are also important differences. Some of the differences are easy to see, others are more difficult.

1. Cranes and humans have many of the same bones. Color the upper arm bones in each skeleton red. Color the sternum in each skeleton green. Do this for all the rest of the named bones using different colors.

Are you surprised that crane skeletons have the same bones as human skeletons?

2. Did you notice that while cranes and humans have some of the same bones, the bones look very different? This is because they are used to do different things.

How are the hand bones different between the two skeletons?

How do people use their hands and how do cranes use their hands?



# Why Can't Kids Fly?

## So...you think you'd like to fly?

We are going to have to rearrange you...a lot.

### 👍 Just try to lighten up!

First of all pal, you need lighter bones. Right now your bones are pretty solid. Let's hollow them out. Hollow bones might be weaker, so let's reinforce them with little lightweight supports called "struts." The rest of your bones we'll fill with air cells.

To make your skeleton even lighter, let's even get rid of some unnecessary bones: You don't need all those fingers since you won't try to pick anything up with your hands. And we can eliminate some toe bones as well.

Let's lose that jawbone and teeth. You won't need them and they're pretty heavy. We'll give you a beak instead which is a lot lighter.

Good. The skeleton is in pretty good shape—lighter and stronger.

### 👍 Next, let's rearrange your muscles!

Are your legs or arms stronger? Is it easier to stand on your legs or your arms? If you expect to fly, you'll need to support your whole body with your arms! Let's see, we'll order larger muscles for your new wings and replace those big muscles in your legs with smaller ones to save some more weight.

Oh no! Where will we attach those bigger new flight muscles? That existing breastbone won't do—it's just not big enough. So we'll place an order for a bigger model.

### 👍 Now what?

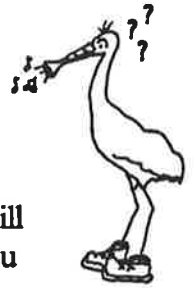
How far can you run before you run out of breath? Cranes can fly all day! Maybe we better get you a new set of lungs, ones that will supply your big muscles with all the oxygen they need to keep on flapping.

### 👍 Anything else?

You bet! Ever watch a sparrow fly through the bushes at top speed without hitting a branch? If you expect to fly, you'll need a completely new navigation and guidance system. Let's see, that would include new eyes, better reflexes, ...and, oh, yeah, a brain that is able to think a lot faster. You're going to have to make an awful lot of decisions flying at 37 feet per second as you weave through those twigs.

**O.K., Mac, you think you want to fly? Well, these are some of the things that you are going to have to do. I'd suggest you take an airplane!**

# Amazing Adaptations

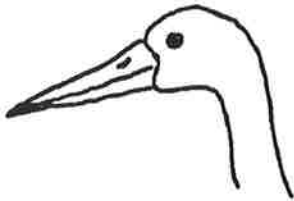


**Adaptations** are changes in an animal's body or behavior that help it survive in its environment.

Cranes have important adaptations of their bill and feet. By looking at the size and shape of the bill you can tell what kind of foods different birds eat. By looking at the size and shape of the feet you can tell something about where the bird lives.

## Types of bills:

Can you match each bill below with the feeding style it was designed for?  
(seed-crushing, tearing, scooping, probing)



a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_

What food item would each kind of bill be good at catching?

a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_

## Types of feet:

Can you match the feet below with the activity they were designed for?  
(climbing, swimming, perching, wading, grasping)



a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_ e) \_\_\_\_\_

Name one bird that has each kind of feet:

a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_ e) \_\_\_\_\_

Cranes live in wetlands and like to eat insects, roots, water plants, fish, frogs, crabs, grains, and snakes. What sort of beaks and feet do you think cranes need? Why?

What are some of the special adaptations that people have?