

# How Animals Walk

© 1998 Eddie Goldstein

Original show by Eddie Goldstein at Smithsonian National Zoo in 1989



Overview of show/Show length (Includes set-up and take-down)

- This is a **street theatre-type** show in which members of the audience are brought "up on stage" and taught how to walk like a variety of animals.
- The show concludes with a parade of all the "animals" doing their respective walks around the stage area.
- 10 minute prep and set-up/15 minute show run/5 minute break down, clean up

## Teaching points

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- Animals move in a variety of ways. This program focuses on different styles of *walking*. We encourage visitors to “see” these animals in a new light by focusing on their “walks.”
- The animals whose walks are demonstrated are:
  - Pigeon (Alternate walker)
  - Sparrow (Simultaneous walker)
  - Human (Alternate walker)
  - Lion (Diagonal Walker)
  - Camel (Same Side walker)
  - Gorilla (Independent walker)
  - Kangaroo
  - Gibbon
- These animals were selected because they exhibit a wide variety of walking styles, which can be done easily by visitors.

## Educational Strategies

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- Kinetic learning—this is a show about how animals walk where people from the *audience will actually walk* like different animals.
- New Eyes— set up a context for the show. Explain why we do this show, namely, so that visitors can have more fun noticing things about the animals that they might not have noticed before.
- Involving the whole audience.
- These animals were selected because they exhibit a wide variety of walking styles, which can be done easily by visitors. Snakes, for example, were eliminated because people would get dirty slithering along the ground on their bellies.
- Science Skills—Understanding form and function; and, observing and testing.
- Discovery/Curiosity—You can extend this show by getting visitors to make predictions about how different animals in the Museum dioramas might walk.

## Set-Up

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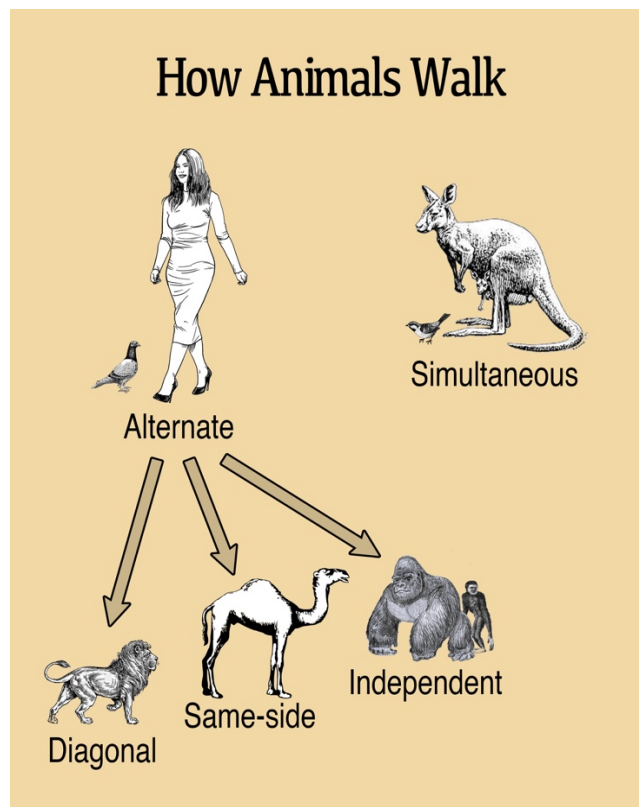
It is important to clearly define the “stage” area and the “audience” area.

To clearly define the space, you can use about 10 - 15 orange soccer cones to form a semi-circle about 10 meters in diameter, with the HAW chart (if used) at the rear of the semi-circle. These cones serve two purposes. 1) They make the performer's job easier during the show because she does not have to worry about the audience (especially kids) closing in on her. You do not want to have to spend your attention continually holding the audience back. 2) The process of setting up the cones, microphone, banner, etc. tells the visitors that are passing by that something is about to happen. During this time, the performer can informally chat with a number of visitors, tell them what is going on, and invite them to stay and see her show.

You should put the 8 animal signs in a pile (in show performance order) near the rear of the semi-circle. These signs have the animal names on them and can be hung over volunteers' necks.

If using a microphone and/or music, start them now.

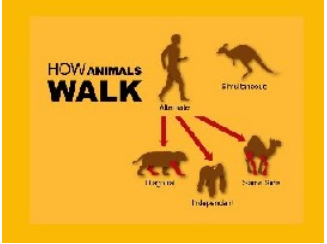
ALTERNATIVELY: If you are doing the show in a classroom, move furniture out of the way as needed.


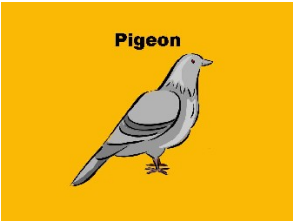




How Animals Walk Chart (optional)



## Script





There are several components to the script. Please feel free to use your own words.

Script	Blocking	Media
<b>Introduction:</b>		
<ul style="list-style-type: none"> <li>• Hi my name is _____. Today we are going to see how animals walk.</li> <li>• How many of you have seen animals today?</li> <li>• Since we don't have any animals here, we are going to have people from the audience be the animals in the show, who will demonstrate how animals walk.</li> <li>• By the end of this show, hopefully you will look at how animals walk in a whole new way.</li> </ul>	<ul style="list-style-type: none"> <li>• Stand in middle of "stage"/semicircle</li> <li>• Walk around; get eye contact with the crowd.</li> <li>• Use this time to stretch, because you will be moving a lot in this show.</li> </ul>	




<b>Pigeon (alternate)</b>		
<ul style="list-style-type: none"> <li>• Let’s dive right in. To learn about simultaneous vs. alternate walkers. We’ll start with an alternate walker.</li> <li>• I’m going to teach you how to walk like a pigeon. I’ll go first, you go next, and you (audience) watch to see how good a job s/he does.</li> <li>• Have you seen a pigeon? Can you show me how a pigeon walks?</li> <li>• Stick out your wings, and take steps, stick your head out as you walk. Left – right -left – right.</li> <li>• This kind of walking is called “alternate” walking.</li> <li>• Let’s give our pigeon some applause and encouragement here. Now, volunteer go ahead and have a seat on the edge of the stage here</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate “walk” for volunteer, then, starting on one side of the “stage” perform alongside s/he until s/he feels comfortable crossing “stage” alone</li> <li>• <u>Pigeon walk</u>: with arms flapping on sides like wings, head bobbing forward and backward with each step, walk forward. Left – right -left – right.</li> </ul>	 



<b>Sparrow (simultaneous)</b>		
<ul style="list-style-type: none"> <li>• I need my next volunteer... how about you.</li> <li>• What's your name?</li> <li>• You'll be walking like a sparrow.</li> <li>• So, let's put out our wings, and we are going to HOP, HOP, HOP, look around for some food. And HOP, HOP, HOP.</li> <li>• Let's hear it for our sparrow.</li> </ul>	<ul style="list-style-type: none"> <li>• Bring volunteer up onto the "stage" (the center of the circle) and place giant name tag saying "Sparrow" around neck</li> <li>• <u>Sparrow walk</u>: with arms flapping on sides like wings, hop forward on both feet</li> </ul>	 
<p><i>(These were chosen because they are familiar to most people. And, their “walks” demonstrate each of the two main categories of walking:</i></p> <ul style="list-style-type: none"> <li>➤ <i>Alternate</i></li> <li>➤ <i>Simultaneous</i></li> </ul> <p><i>These “walks” are easy for visitors to perform, hence, are non-threatening near the beginning of the show.)</i></p> <p><i>Each animal walk demonstration follows the same pattern: 1) choose a volunteer; 2) show her/him how to do the walk; 3) ask her/him to demonstrate it for the audience. As each volunteer finishes his walk, ask them to sit at the edge of the stage area with her/his name tag still around her/his neck. As the show progresses, this “menagerie” grows larger and larger.</i></p>		

<b>Human (alternate diagonal)</b>		
<ul style="list-style-type: none"> <li>• I need another volunteer for a pretty technical alternate walk.</li> <li>• You'll be walking like a human. This is going to be tough. Can you walk like a human?</li> <li>• Like the pigeon, a human alternates the legs. But let's look at the arms, how are the arms moving? Look how your left arm moves with your right leg, and vice versa. This is also a type of "diagonal" walking.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Volunteer</u>-This is a good time in the show to pick a human volunteer.</li> <li>• <u>Human walk</u>: slightly exaggerate alternating arm swing and foot step movements (stepping forward with left foot while swinging right arm forward and vice versa)</li> <li>• You can hide the sign and turn it around for dramatic effect.</li> </ul>	 
<p><i>A human puts the other animals in perspective and shows how we fit into the picture. placing "Human" here is that in a moment we will be trying to explain the diagonal walk that Lions do. Humans do a modification of the same diagonal walk, and it is easier to explain the Lion walk if the audience has already seen the diagonal action in the "Human Walk"</i></p> <p><i>Also, choosing an adult for the human walk breaks the ice for adult volunteers so that the show doesn't become an all-kiddie show. Walking like a human is non-threatening for most adults.</i></p>		


<p><b>Lion (alternate diagonal)</b></p> <ul style="list-style-type: none"> <li>• I need another volunteer.</li> <li>• You'll be walking like a lion. How does a lion walk? It walks on all fours, but it moves its front left leg and back right leg at the same time.</li> <li>• This type of walk let's the lion keep its balance when walking slowly. Good for stalking its prey.</li> <li>• Let me show you. Good, now walk out there like you are on the hunt, now give a big roar.</li> </ul>	<p><u>Lion walk</u>: on all fours, crawl just like a person/baby normally would—alternating hands and feet</p>	 
<p><i>By this point in the show people are usually comfortable enough to do the four-legged walks. These animals exhibit each of the three major types of four-legged alternate walks.</i></p> <p><i>It is important that you get down on all fours when demonstrating these walks, since that is what the volunteer is being asked to do, and you should never ask the volunteer to do something that you won't do.</i></p>		
<p><b>Camel (alternate same-side)</b></p> <p>I need another volunteer.</p> <ul style="list-style-type: none"> <li>• You'll be walking like a camel. How does a camel walk? It also walks on all fours, but it moves the legs on each side at the same time. This is called “same side walking”</li> <li>• Can you see the natural rocking back and forth? The camel is called the “ship of the desert.”</li> <li>• People in the front row might want to be careful, because camels spit.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Camel walk</u>: on all fours move same side—right arm and right foot—forward simultaneously, then left hand, left foot</li> </ul>	 


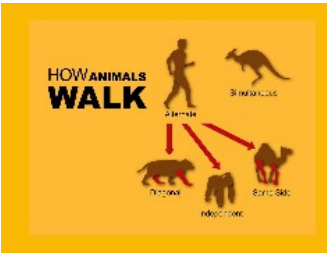



<p><b>Gorilla (alternate independent)</b></p>		
<ul style="list-style-type: none"> <li>• I need another volunteer.</li> <li>• You'll be walking like a gorilla. How does a gorilla walk? Gorillas mostly use their arms and legs to walk, but they don't have a particular pattern. This is called "independent walking."</li> <li>• By the way, gorillas use their knuckles to walk, but I'll use my hands because it hurts to walk on your knuckles.</li> <li>• Go ahead and walk, now beat your chest like a gorilla.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Gorilla walk</u>: squatting with hands or knuckles touching the ground move forward with all limbs moving independently of each other, easily changing direction.</li> </ul>	 
<ul style="list-style-type: none"> <li>• We only have two more left to go."</li> </ul>		
<p><i>This is a road map for the visitors. It is important to give the visitors an estimate of how much more there is to the show (a context). After all, most of the visitors are under some other sort of time constraint. You don't want them leaving just before the end simply because they don't know that the show is almost over.</i></p>		
<p><b>Kangaroo (simultaneous slow hop, fast hop)</b></p>		
<ul style="list-style-type: none"> <li>• I need another volunteer, you'll be a kangaroo.</li> <li>• Now, lots of animals have a couple of different ways that they walk and run. Kangaroos are a good example of this. They are simultaneous walkers, but they have different <b>gaits</b> for running and walking.</li> </ul>		

<ul style="list-style-type: none"> <li>Let's try walking like a kangaroo. Put your front paws on the floor, and we are going to move our front paws together, and then slide/hop our back legs up to meet them.</li> <li>Now, kangaroo, can you show us how you hop?</li> <li>Put your paws out, bend at the waist, head up, and BOING, BOING, BOING</li> </ul>	<ul style="list-style-type: none"> <li><u>Kangaroo walk</u>: squatting with hands on ground in front of you slide-hop your feet towards the outsides of your hands, reposition your hands forward, slide-hope again</li> <li><u>Kangaroo run</u>: standing up, with knees slightly bent, "paws" in front of you, hop quickly</li> </ul>	<p>Walk</p>  <p>Run</p> 
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*Kangaroos have a walking style and a running style which are not the same. Many animals have several locomotion styles; consider horses which can walk, trot, canter, gallop, etc. Kangaroos are a second example of simultaneous walking in a show that is dominated by alternate walks*

<b>Gibbon</b>		
<ul style="list-style-type: none"> <li>Our last animal is lots of fun. We need a volunteer to be a gibbon.</li> <li>Gibbons usually swing in trees, using their long arms (this is called Brachiating). But sometimes they have to walk. Here's how they do it.</li> <li>Put your arms high up above your head so that your long arms don't drag on the ground, bend your wrists, squat down, now run and wave your arms around.</li> </ul>	<ul style="list-style-type: none"> <li><u>Gibbon walk</u>: with knees slightly bent, waving/wiggling your hands above your head, walk quickly</li> </ul>	

<p><i>This was chosen because it is a very funny looking walk, and is a good way to end the show. If you choose an adult to do this, they look ridiculous (not in a bad way), and if you choose a little kid, they look cute. Either way, you can't miss.</i></p>		
<p><b>Parade:</b></p>		
<ul style="list-style-type: none"> <li>• Let's look at all of our animals again. We are going to have a parade with all of our animals. After that everybody will get a chance to walk like one of the animals.</li> <li>• Let's have the sparrow, pigeon, human, lion, camel, gorilla, kangaroo, and gibbon. I want you to walk around the front of the circle, and when you get to the end, drop your name tag off on that bench, in that basket. (Call off the animal names in whatever order your volunteers happen to be lined up. No special order required.)</li> </ul>	<ul style="list-style-type: none"> <li>• Performer gestures to the group of volunteers to stand up</li> <li>• Put music on.</li> <li>• As they are parading call out all of their names and their walking styles. "The Lion - diagonal walk; the Gorilla - independent walk," etc.</li> <li>• Demonstrate Gibbon again, then everybody walks like a Gibbon.</li> </ul>	
<p><b>Everybody:</b></p>		
<ul style="list-style-type: none"> <li>• Now, let's have everyone in the audience stand up and walk like a gibbon. So put your arms high up above your head, bend your wrists, squat down, now run and wave your arms around and follow me.</li> </ul>	<ul style="list-style-type: none"> <li>• Have everybody follow you around the room as gibbons. Be sure you bring everybody back to where they started so you don't lose any kids.</li> </ul>	

Conclusion		
<ul style="list-style-type: none"> <li>• And that's how animals walk! My name is _____ and I'll be here for awhile if anyone wants to come up and try walking like the different animals.</li> <li>• Have a great visit to the Museum!</li> </ul>		
Post-show "show"		
<ul style="list-style-type: none"> <li>• After the show is over make yourself available to the visitors. Often people will have questions; kids may want to try some of the walks. Let them wear nametags and try "walks." Even though the show appears to be over from the audience's point of view, you are still on stage and acting as a friendly representative of the Museum.</li> </ul>		<p>post show slides of animals in dioramas to be added (Fall 2006)</p>

## Troubleshooting

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### Gathering a crowd in a public space

The key to drawing visitors to the presentation is to make it look like something good is about to happen. Hopefully the music combined with the physical setup of the space will attract people.

As visitors approach, invite them to sit down in the front row—near the circle of cones. This begins to build the core of audience members needed to get the ball rolling. Equally important, asking them to sit down causes the visitors to make a psychological commitment to the show. As other visitors pass by, explain what is about to happen, with an attitude which says, "Why not join the party? It's going to be a lot of fun." Try to accomplish three things: 1) get the small groups of people who have gathered to coalesce and begin to think of themselves as a single audience, 2) get the audience into the habit of applauding, 3) attract more visitors.

- A technique to use at this point is to ask the audience if they will help in attracting a larger crowd. "When I count to three, I want everybody to clap, whistle, and make a lot of noise so

we can draw a bigger crowd. Will you help me?" The "Will you help me?" part is very important because it strengthens their commitment to the show. The whole mood is one of having fun, with the entire audience, as a group, pulling a fast one on the non-suspecting visitors who are passing by. Normally you cannot ask for applause for yourself, but since this is a joke, it is okay. Actively engage the audience early in the show, setting up a situation where information and responses flow freely in both directions.

In the audience's minds, the show is about to begin. In reality, the show has been going on for some time now.

### **Providing context for the program**

It is crucial that the audience has a clear understanding of what is about to occur. Obviously this is a show--that much is clear from the setting. Obviously they are expected to applaud, they've been doing that for several minutes now. Other than this, many people may not be sure what is going on.

Although it is clear to you how the different walking styles relate to one another, to the audience it could seem like a potpourri of animals and walking styles, chosen at random. The chart is very helpful so that visitors can follow the logic of the show. Additionally, throughout the presentation, the chart gives them a rough idea of where we are in the show.

Notice that everything is orchestrated. "You stand here." "You guys clap." "You sit here." *The audience is part of the script of the show*, and you merely guide them through their "lines". Incidentally, the giant name tags not only to help the audience follow the action, but, if placed in the correct order before the show they act as cue cards.

### **A note about choosing volunteers**

You always choose the "Volunteers". It is important for you to choose people whom you think will be good for the show — good sports, fun loving, outgoing people, people who will not be embarrassed. Choosing participants from a wide selection of age groups, sexes and ethnic backgrounds is a must.

There are some rules of thumb. A young father with a pack of kids with him will probably be good. After all, he probably gets down on all fours when he is playing with his kids. People who wear loud or ridiculous clothing are not shy about being noticed. Choosing someone who is with a large group of friends is always good. Not only does s/he have instant fans, but it holds the entire group until the end of the show. Also, remember this show is for all visitors, young and old alike. To keep it from having a "kiddie show" feel to it, it is crucial that about half of the volunteers from the audience be adults. It is easy to get an adult to do the "Human Walk", and this breaks the ice early in the show for getting other adults into the act.

The key is that YOU choose the person whom YOU think will be best for the show (even if her/his hand is not raised), not necessarily the person who is volunteering the loudest.

### **More about applause**

It may seem that there has been a lot of discussion about getting applause. Why so much interest in this for an "educational" show? It is a method of allowing the audience members to interact

and/or express themselves. There are only so many ways that you can get large numbers of people to interact. Hand-raising is another one, but that is more appropriate in a school than at a show. And, people *enjoy* clapping. Would you rather go to a show where the audience is sitting on their hands or doing a lot of clapping?

Applause can be used, not only for showing approval, but also for answering questions, taking votes, encouraging fellow audience members, making sounds for sound's sake, or, as mentioned earlier, for playing a joke. Audience members feel as if they are more involved in the show if they have been applauding along the way. It is your job to guide the audience as to when clapping is called for. As each volunteer comes up onto the stage, ask for a round of applause for her/him. When the first volunteer is about to start "walking", ask the audience, "Will you give her/him a big round of applause?" This not only lets the audience know what you would like them to do, but it sets up a contract between you and the audience. Notice that in every case, you never ask for applause for yourself, always for somebody else.

In fact, as the show progresses you need to do less and less to cue the audience. Often simply clapping your own hands will trigger the audience. They will generally continue the pattern of applauding that has been established early in the show. Remember: *The audience is part of the script!*

**Ensure everybody has a clear idea of what is going to go on and what they are supposed to do.**

It allows them to make a mental model of the interaction, and understand how they fit into the picture. If the visitors do not understand what their role is, they will not feel comfortable, and will have much more difficulty assimilating the information you are trying to deliver.

## FAQs

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### **Q. What's the deal with the kangaroo walking and running in two ways?**

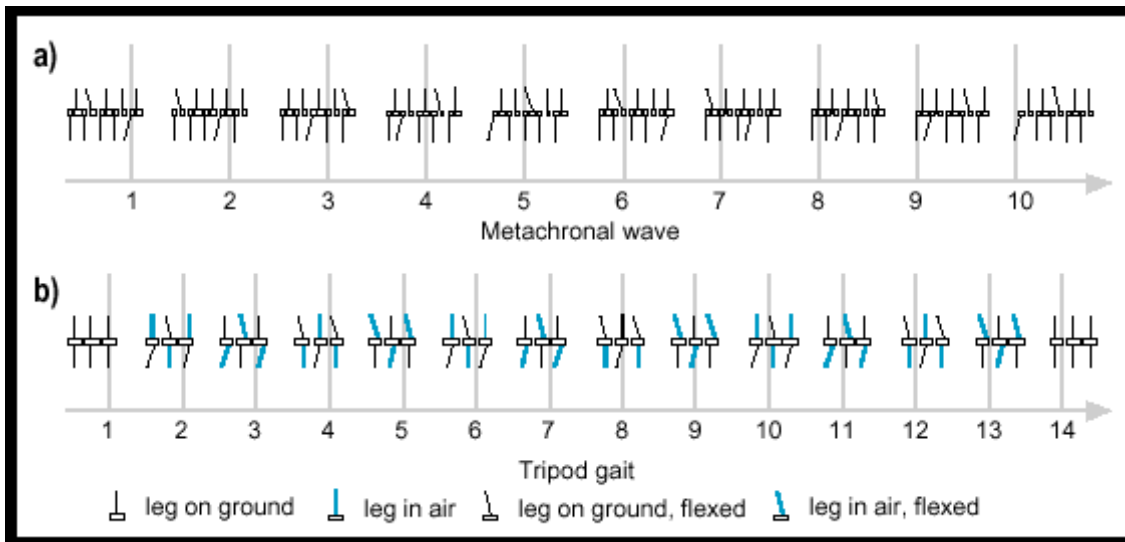
Animals show a vast range of gaits, the order that they place and lift their legs when locomoting. Walking is the most common gait, where some feet are on the ground at any given time, and found in almost all legged animals. Running where at some points in the gait all feet are off the ground can be found in many animals, this is a faster but more energetically costly way of moving. There are often many different gaits intermediate between walking and running, this depends on the animals, for example the main horse gaits are walk, trot, canter, or gallop.

Animals may also have unusual gaits that are used occasionally, such as for moving sideways or backwards. For example the main human gaits are bipedal walking and running, but they employ many other gaits occasionally, for example in cramped spaces they may crawl on all fours.

[http://en.wikipedia.org/wiki/Animal\\_locomotion](http://en.wikipedia.org/wiki/Animal_locomotion)

### **What about insects?**

Insects have 6 legs, so the ways to describe their walking patterns are a little more complex:



**Figure 2.** The two basic types of insect locomotion patterns. The top pattern is the metachronal wave gate. The bottom pattern is the tripod gate.

<http://www.mindcreators.com/InsectLocomotion.htm>

### What about Snakes?

Where the foot is important to the legged mammal, for animals that slither the underside of the body is important. Some animals such as snakes or legless lizards move on their smooth dry underside. Other animals have various features that aid movement. Molluscs such as Slugs and snails move on a layer of mucus that is secreted from their underside, reducing friction and protect from injury when moving over sharp objects. Earthworms have small bristles (setae) that hook into the substrate and help them move. Some animals such as leeches have suction cups on either end of the body allowing two anchor movement.

- Some limbless animals, such as a leeches, have suction cups on either end of their body, which allows them to move by anchoring the rear end and then moving forward the front end, which is then anchored and then the back end is pulled in, and so on. This is know as two anchor movement. A legged animal, the inchworm, also moves like this, clasping with appendages at either end of its body.
- Limbless animals can also move using pedal locomotary waves, rippling the underside of the body. This is the main method used by molluscs such as slugs and snails, and also large flatworms, and some other worms. The wave may move in the opposite direction to motion, known as retrograde waves, or in the same direction as motion, known as direct waves. Earthworms move by retrograde waves alternatively swelling and contraction down their body, the swollen sections being help in place using setae. Aquatic molluscs such as limpets, which are sometimes out of the water, tend to move using retrograde waves. However terrestrial molluscs such as slugs and snails tend to use direct waves. Lugworms also use direct waves.
- Most snakes move using lateral undulation where a lateral wave travels in the opposite direction of motion and pushes the snake of irregularities in the ground. This is not effective on a very flat surface. Another form of locomotion, rectilinear locomotion, is used at times by some snakes, especially large ones such as pythons and boa. Here large scales on the underside of the body, known as scutes are used to push backwards and downwards. This is effective on a flat surface and is used for slow, silent movement, such as when stalking prey.

Snakes use concertina locomotion for moving slowly in burrows or among rocks, here the snake alternates in bracing parts of its body on it surrounds. Finally the caenophidian snakes use the fast and unusual method of movement known as sidewinding on sand or loose soil, where the snake moves sideways. The snake cycles through throwing the front part of its body sideways in the direction of motion and bringing the back part of it body into line.

([http://en.wikipedia.org/wiki/Terrestrial\\_locomotion\\_in\\_animals#Slithering](http://en.wikipedia.org/wiki/Terrestrial_locomotion_in_animals#Slithering))

### **Why do birds bob their head when they walk?**

Watch chickens or pigeons walk around on the ground, and you can't help but notice that they move their heads back and forth as they walk. If they speed up their steps, the head bobbing speeds up too. Not all birds do this, but many that walk instead of hopping do.

This head motion looks silly, and it may look like random head waving, but it's not. If you look closely, or take videos and watch them in slow motion, you will see the head actually stays in one place while the body walks past it. It then is jerked forward and put in front of the body and the body walks past it again.

What this behavior does is keep the head still and in one spot as long as possible. By keeping the head still, the bird gets a better look at the world and is able to see things more clearly. It can focus on one spot for a longer period of time.

This tactic is especially useful for seeing motion. Birds are very interested in moving things: small moving objects to catch and eat (such as insects), and large moving objects that might be dangerous and need to be avoided (such as hawks). Detecting movement while you are moving is hard; the best way to do it is to stand still. The head bobbing of birds allows them to detect movement while they are moving too.

Why don't other animals move their heads like this? Have you tried it? Although you, too, can look silly while you walk, your neck just isn't long enough to keep your head still for long enough to make a difference. Birds, though, have surprisingly long necks. Even birds that look like they have no necks – such as doves, chickadees, or quail -- actually have long necks. Much of a bird's neck is coiled in an S-shaped curve hidden by the neck feathers. They can extend their necks out pretty far when they want to. It is this long, flexible neck that allows birds to bob their heads effectively when they walk.

<http://www.ccmr.cornell.edu/education/ask/index.html?qid=472>