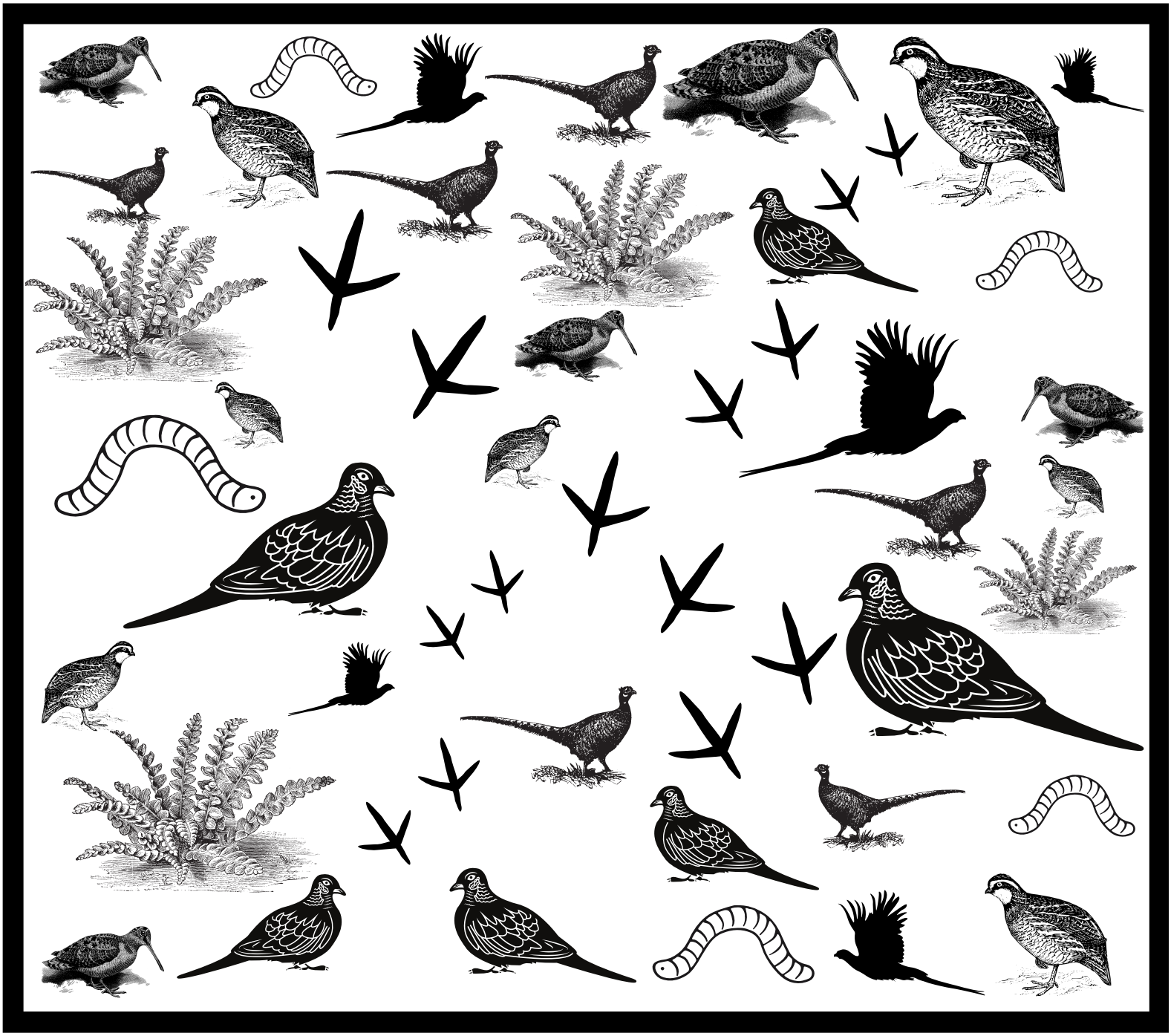
705-748-6324, ext 100
email: info@hfhc.ca
www.hfhc.ca

HFHC
The OFAH | Mario Cortellucci Hunting & Fishing Heritage Centre

JK to Grade 3

EYE SPY

Upland Game Birds have fantastic vision. Use <u>your</u> keen eye sight to find the items listed below and circle them. Check them off the list when you have found them all!



- [ ] 7 bobwhite quail
- [ ] 5 american woodcock
- [ ] 5 flying pheasants
- [ ] 6 standing pheasants
- [ ] 6 mourning doves
- [ ] 5 wiggly earthworms
- [ ] 4 ferns
- [ ] 7 pairs of bird foot prints

705-748-6324, ext 100
email: info@hfhc.ca
www.hfhc.ca

HFHC
The OFAH | Mario Cortellucci Hunting & Fishing Heritage Centre

FANTASTIC FEATURES

Grade 4 to 8

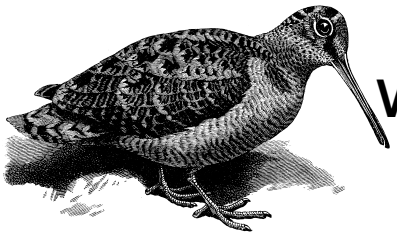
Each species of upland game bird in Ontario has some unique and distinct charactersitics. Can you name some of the characteristics that make each species unique? List them below.

RING NECKED PHEASANT

MOURNING DOVE

BOBWHITE QUAIL

AMERICAN WOODCOCK



705-748-6324, ext 100
email: info@hfhc.ca
www.hfhc.ca

HFHC
The OFAH | Mario Cortellucci Hunting & Fishing Heritage Centre

JK to Grade 3

OBSERVE! (40 min.)

Fly Like a Bird!

You'll need: Balloons, craft feathers, clothespins, clear tape and markers. A Smartboard or dry erase board and dry erase markers.

Set Up: Make sure you have enough balloons, clothespins and feathers for each student in your class. Have tape and markers on hand as well.

Explanation:

- Explain to students that birds use two things to make themselves fly. The first is **lift**. When air quickly moves across a bird's wings, it creates a difference in pressure between the top of the wing and the bottom of the wing. The slow moving air under the wing wins out in the high pressure war, causing the wing (and the bird!) to rise or lift.
- The second thing that makes birds fly is **thrust**. In order to get that fast moving air on the top of their wings, birds flap them. As they push their wings down creating thrust, the air speeds up and lift takes place.
- Explain to students that they will be making their own birds using balloons, tape, feathers and markers and that they will be learning about how thrust and lift can make their birds fly, too! We're going to artificially supply our birds with some thrust and lift. It's coming from a balloon and some feathers.
- Explain that the thrust from the balloon happens because the rubber of the balloon wants to return to it's natural, un-stretched state and pushes the air out. The escaping air puts a downward force on the outside air, pushing the balloon upwards. As the balloon rises from the downward thrust of the air, some fast air moves across the feather wings of the balloon giving it even more lift.
- Next, blow up each balloon, twist the neck of the balloons closed and clip each one with a clothespin. Then draw your face on the bird. Next, pick two feathers for each wing and tape ends onto balloon. We don't recommend adding too many feathers or the birds won't fly as well because they're too heavy, but it may be a good idea to allow a few students to attach a few too many in order to achieve some different results.
- Now, have each student unclip the balloon one at a time and toss it upwards in the air. Allow each student to take their own turn while the class observes.
- Allow for some class discussion while students take turns unclipping their balloons. Observe for the following discussion questions: Does the placement of the feathers make a difference in how it flies? Which works best? How many feathers does it take to make the bird too heavy to fly? What type of release gives the bird the most lift? How many birds can we fly at once?
- Students may wonder why the balloon birds do not necessarily fly straight. You can explain that in order for the bird to fly in a straight line, the air rushing out of the balloon would have to create a force exactly in the center of the balloon. But because the neck of the balloon is flexible, it wobbles with the force of the releasing air. Thus the force is never quite in the middle, causing it to rotate. If you put something with a bit of weight on the nose of the balloon, directly opposite of the neck, it will fly in a straight line. You can attempt this and repeat the activity to make other observations.

705-748-6324, ext 100
email: info@hfhc.ca
www.hfhc.ca

HFHC
The OFAH | Mario Cortellucci Hunting & Fishing Heritage Centre

CHALLENGE! (45 min.) Grades 4-8

Explore Bird Aerodynamics

You'll need: A smartboard, chalk board or dry erase board with writing utensil. Pieces of standard paper (3 per student with no holes in it), and one paperclip for each student. You will also want a measuring tape.

Set Up: Start by writing on the board "What factors allow birds to fly?" Have 3 pieces of paper available for each student, and one paperclip each available. Make a chart on the board with three columns, with the headings "Crumpled," "Standard," and "Weighted." This chart will later be used for tracking information. Mark a throwing line on the ground, with plenty of space for a paper airplane to fly and then have its flight measured.

Explanation:

- Pose the question to students "What factors allow birds to fly?" Allow for class discussion and make notes on the board for students to reference. Some answers you may be looking for are Aerodynamics, Lift, Feathers, Air flow, etc.
- Explain to students that they will be examining a key factor in what makes birds fly, Aerodynamics. Birds need to be streamlined, must minimize drag in the air and have a balanced center of gravity in order to be able to successfully fly.
- Hand 3 pieces of paper out to students and explain that they will be making simple models through which you will be exploring aerodynamics and these factors which influence successful flight.
- Have students make three different "Flight models." One will be a crumpled piece of paper, one will be a basic paper airplane, and the third one will be a basic paper airplane, but with a paperclip attached to the underside of the plane in the front-mid section of the belly.
- If students are unsure how to make a paper airplane show them this video - https://www.youtube.com/watch?v=r9ReNKZiZNc
- Tell students that they will now be presented with the opportunity to test out their three models as a class, and that they will be tracking the performance of these three types of planes to compare aerodynamics.
- Taking turns, have each member of the class step up to the designated throwing line and begin by throwing the crumpled pieces of paper. Measure the distance of each throw and put it onto the chart.
- Continue this process for both the standard paper airplane and for the weighted paper airplane. Chart all details, then find the average distance for each category by adding up the total distance for each category and dividing it by the number of "throwers."
- Look at distance numbers and discuss with class. If the experiment matches the reality and projected outcomes, you should see details as follows, Crumpled should be the least distance, Standard should be second and the Weighted plane should be the furthest distances.
- Discuss why students think this is the case and have them give reasons why each a category ended up with the results they had.
- Explain that a huge reason why birds can fly as they do, and do so efficiently is because of aerodynamics. Their beak acts as the tip of a plane would, cutting through the air as they fly. They then have very streamlined bodies which allows air to flow over them and creates minimal drag. Birds also contain their largest Weigh over their center of gravity, which influences the ease with which they fly. Discuss the Crumpled paper and how it creates the most drag, and that if bird were shaped in this way it would negatively influence their flight capabilities.
- To extend this learning, look on YouTube for various different birds and compare and contrast their bodies with their flight.