

Streaming chloroplasts flip book

Purpose of activity: To see how chloroplasts circulate around inside plant cells in order to give each chloroplast equal access to light source

Target age group: grades 4-8 (can be used with older or younger with no special adaptations)

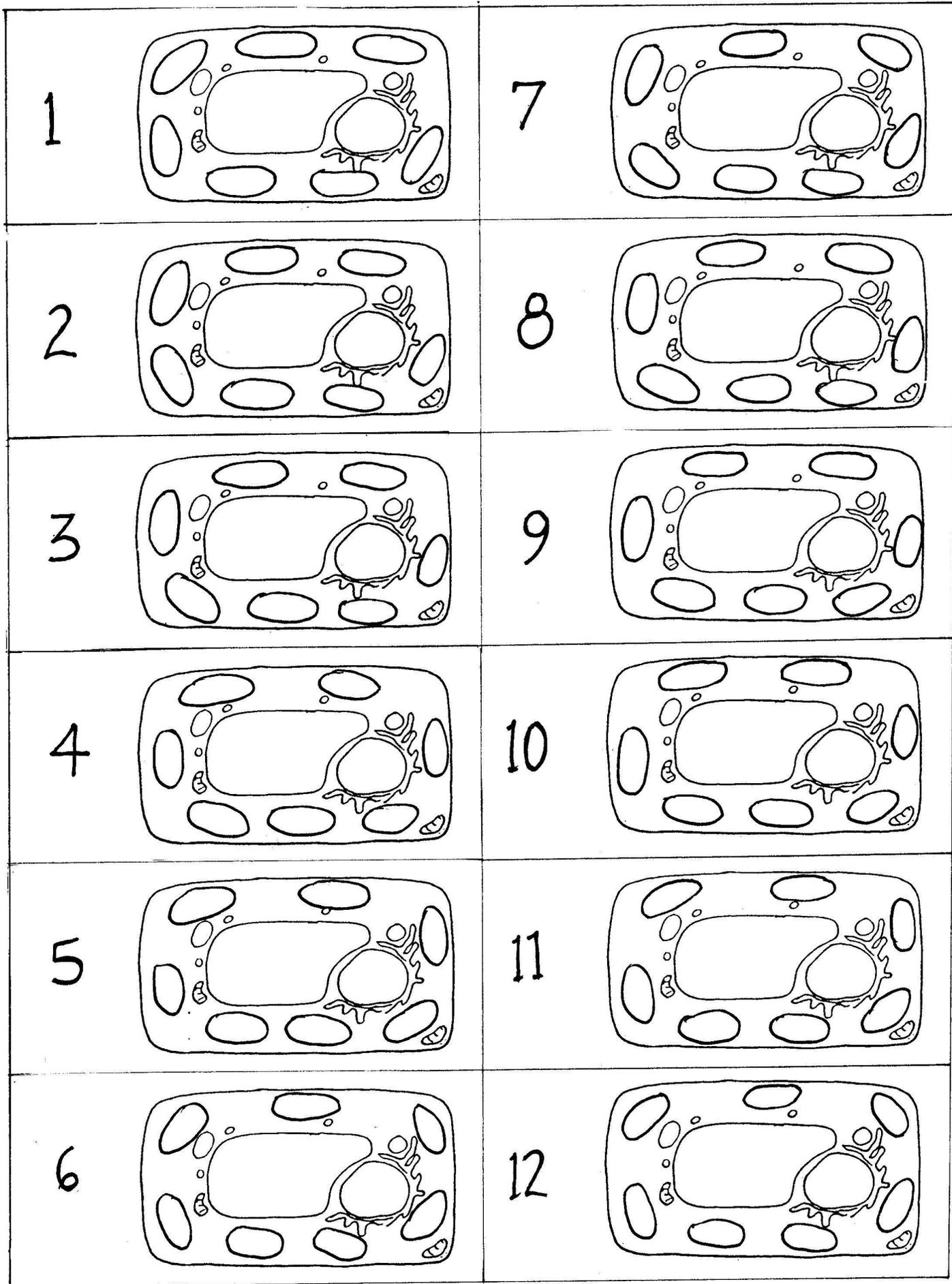
Time needed: 20-25 minutes, a little longer with younger kids

Materials needed: photocopies of patterns on white card stock, white glue, scissors, and green colored pencil (or crayon) for coloring chloroplasts (optional: fine sandpaper for smoothing edges)

Directions:

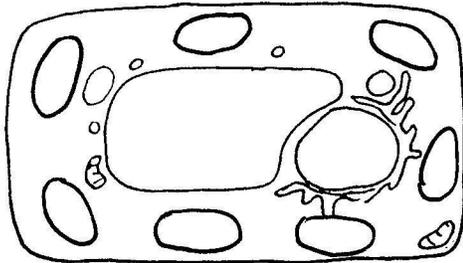
- 1) Photocopy the pattern pages onto white card stock. If card stock is not available, use the heaviest weight paper you can find.
- 2) Color all the chloroplasts green.
- 3) Cut out the 24 pages of the flip book. Remind the students that careful cutting will yield better results in the final product.
- 4) Page 1 goes on the bottom. Apply a small amount of white glue right on top of the numeral 1. (Don't use too much glue! One small dot is enough. If the glue oozes out, you used too much!) Place page 2 on top of page 1, and line up the right hand edge, not the edge with the number. Press down firmly for about 20 seconds.
- 5) Repeat the same procedure with the thin patch of white glue on the numeral end. Then place page 3 on top of page 2. Press down firmly for 20 seconds.
- 6) Repeat this procedure until you have stacked all 24 pages, with the title page of the top. Remember to line up the right hand edges of the pages.
- 7) After the booklet has dried for about 5 minutes, you may want to use the sandpaper to smooth the right hand edge of the booklet if the edges are not matched up smoothly. Having the righthand edge of the booklet smooth will make the flip book flip better.
- 8) Try out the flip book and watch the chloroplasts circulate around the outside of the cell.
- 9) You may want to search the Internet for a video clip of streaming chloroplasts so the students can see how real chloroplasts look when the stream around the cell.



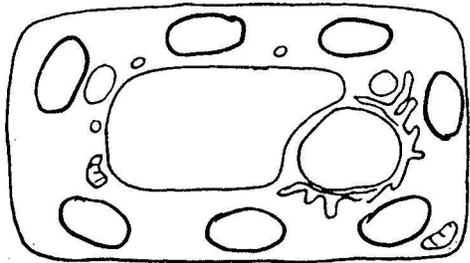


PHOTOCOPY ONTO WHITE CARDSTOCK ("INDEX" STOCK)
(or heavyweight paper if cardstock is not available)

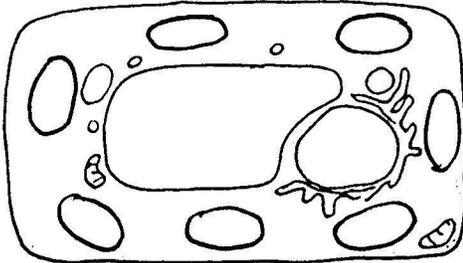
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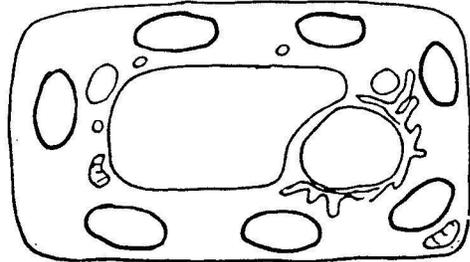
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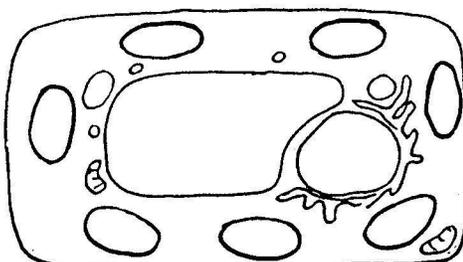
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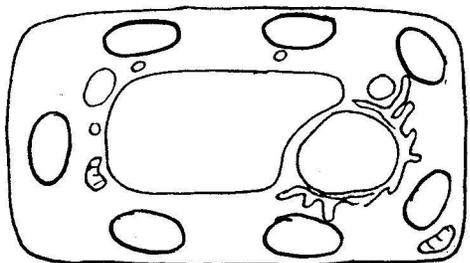
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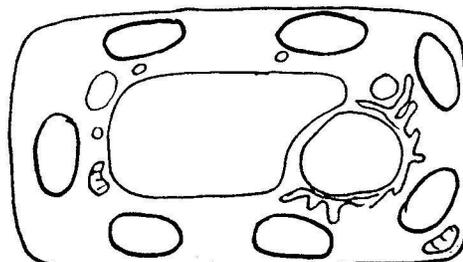
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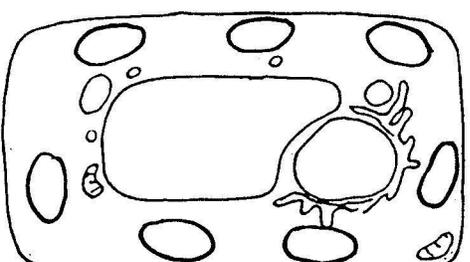
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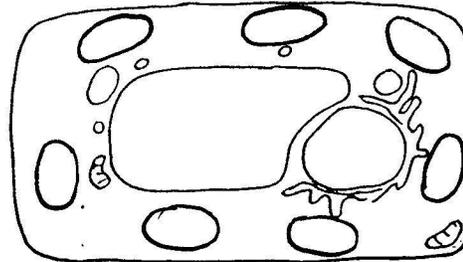
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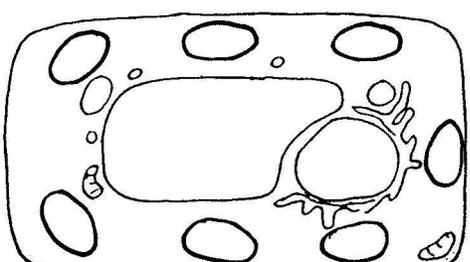
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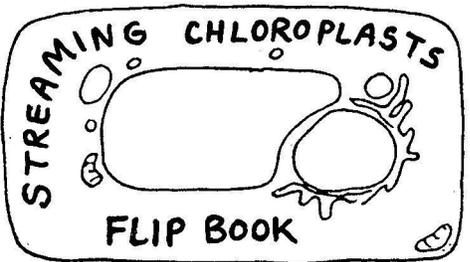
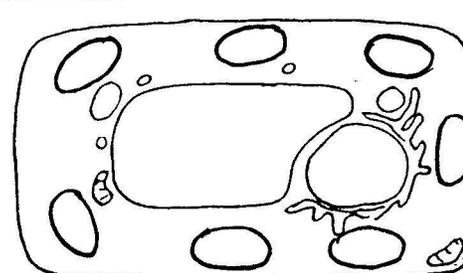
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