

# The DNA Files:

## Workshops and Activities



The DNA Files Workshops are an outreach component of the third DNA Files radio series produced by SoundVision Productions with funding from the National Science Foundation, the U.S. Department of Energy, the National Institutes of Health, and the Alfred P. Sloan Foundation.

# DNA Basics

## Workshop Preparation and Materials List

### Workshop Preparation

Acquire all materials on the Materials List

Put together a DNA model to use as an example, and cut DNA model pages in half, so that spines are on one piece and rungs on another

Arrange trays for DNA extraction (4-6 test tubes in a rack, one Ziploc bag containing wheat germ, 4-6 clear plastic cups, 4-6 spoons, 4-6 transfer pipets or eyedroppers plus an additional one, specially marked, for alcohol, a bottle each of rubbing alcohol, dishwashing liquid, and water on each tray.)

Mix enough resealable plastic bags for groups of 3 with four different kinds of beads in the correct proportions (1:4:45:50), with around 200-250 total beads/bag

### Materials List

Nametags and non-permanent markers

#### Activity #1 What and where is DNA?

A whiteboard, blackboard or flipchart and associated writing implements

#### Activity #2 Building a model

Picture of DNA

DNA model kits

Small resealable plastic bags

	Ordering Information	Price (before tax & shipping)
Nametags and non-permanent markers	Self-provided	
<b>Activity #1 What and where is DNA?</b>		
A whiteboard, blackboard or flipchart and associated writing implements	Self-provided	
<b>Activity #2 Building a model</b>		
Picture of DNA	download from web	
DNA model kits	download from web	(adapted from CSIRO's Double Helix Science Club (Australia). For a range of fun science education resources visit <a href="http://www.csiro.au/helix">www.csiro.au/helix</a> , <a href="http://www.csiro.au/sciencemail">www.csiro.au/sciencemail</a> , or <a href="http://www.csiro.au/diy">www.csiro.au/diy</a> )
Small resealable plastic bags	www.cvs.com CVS Zipper Seal Sandwich Bags	\$2.69/50 bags

Scissors (one pair per participant)

Gluestick (one per participant)

**Activity #3 DNA extraction**

Plastic or bioplastic cups (clear), one per participant

Plastic or bioplastic teaspoons

Paper towels

Water in containers, 1 per each group of 4-6 participants

Soap in dropper bottles

Test tubes

Test tube racks

Wheat germ (unroasted)

Wheat Germ Natural Raw

Alcohol in a squeeze bottle

Plastic disposable transfer pipettes

Glass stir rods or long plastic coffee stirrers (optional)

Multi purpose cleaner (for cleanup afterwards)

Cafeteria trays (one per 5 or 6 participants, optional)

**Activity #4 Separating the genome**

Example beads

Plastic or bioplastic cups (clear), four for each group of three participants

Pre-counted bags of beads (one per 2 or 3 students)

Self-provided	
Self-provided	
greenearthofficesupply.stores.yahoo.net, K4007	\$5.25/50 cups
greenearthofficesupply.stores.yahoo.net, K1661	\$4.25/50 spoons
greenearthofficesupply.stores.yahoo.net, K7122	\$2.50/roll (77.8 sq. ft.)
Self-provided	
www.cvs.com, DAWN Ultra Concentrated Dish Liquid Original Scent	\$1.69/11 oz.
Carolina Biologicals www.carolina.com, 73-1053	\$10.80/24 test tubes
Carolina Biologicals www.carolina.com, 73-1880	\$4.25 each
www.thebetterhealthstore.com (Bob's Red Mill)	\$2.29/16 oz.
www.cvs.com CVS 70% Ethyl Rubbing Alcohol	\$1.99/16 oz.
Carolina Biologicals www.carolina.com, 73-6984	\$4.35/pack of 100
Carolina Biologicals www.carolina.com, 71-1307	\$5.20/pack of 12
Self-provided	
Self-provided	
www.shipwreckbeads.com, 32PO100	\$2.25/300 pc
www.shipwreckbeads.com, 9CP100	\$6.50/1000 pc
www.shipwreckbeads.com, 8PF200	\$4.25/750 pc
www.shipwreckbeads.com, 10W0158	\$2.75/2 strands of 100pcs
greenearthofficesupply.stores.yahoo.net, K4007	\$5.25/50 cups
www.cvs.com CVS Zipper Seal Sandwich Bags	\$2.69/50 bags