Build a Hand Shade

Plan, build, test, and improve a paper shade.

E.K.8B.3 "Develop a device (i.e., umbrella, shade structure, or hat) which would reduce heat from the sun (temperature). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device.*"

NAME _____ DATE _____

Teacher: this page is run aloud. The script and answers are on the guide page.

1 THINK FIRST

a

sun	**rain**	**wind**

b

wet	**cool**	**loud**

2 BUILD AND TEST

PLAN	
TEST	
FIX	

ANSWER KEY

Build a Hand Shade

KINDERGARTEN · E.K.8B.3

HOW TO RUN THIS PAGE

Use this sheet on a sunny day, with a piece of scrap paper and a pencil for each student. Read the questions aloud, then observe each student build a shade, compare how a hand feels in sunlight and shade, make a change, and test again.

Students never read directions on this sheet. Read each part's script aloud, then each prompt, giving think time before students mark.

PART 1 · THINK FIRST

SAY "Let's think about a problem and a way to help. Listen to each question and circle one word in its row."

ROW	SAY	STUDENTS CIRCLE
a	What can make your hand too warm outside, sun, rain, or wind?	**sun**
b	What should a shade help your hand feel, wet, cool, or loud?	**cool**

PART 2 · BUILD AND TEST

SAY "How will you use scrap paper and a pencil to shade your hand? Tell me your plan, write its first letter in PLAN, and build your shade. In sunlight, feel your hand without the shade and then under it. Does it feel less warm under the shade? Write Y for yes or N for no in TEST. Tell me one change you can make, write its first letter in FIX, then make the change and test again."

- Box 1 (beside PLAN): **First letter of the student's stated plan; student builds the planned shade.**
- Box 2 (beside TEST): **Y or N, matching the student's observation.**
- Box 3 (beside FIX): **First letter of the student's stated change; student changes the shade and tests it again.**

WHAT TO ACCEPT

Circle sun and cool. Accept either test result when it matches the student's observation; observe that the student states a plan, builds the shade, makes a change, and retests it.