



SUMMER STEM BUCKET LIST

THERE'S SO MUCH TIME TO DO FUN STEM EXPERIMENTS DURING SUMMER BREAK! BRIX AND BROOKLYN ARE READY TO FILL YOUR FREE TIME WITH COOL ACTIVITIES - IT'S THEIR SUMMER STEM BUCKET LIST. HOW MANY CAN YOU COMPLETE BEFORE GOING BACK TO SCHOOL IN THE FALL?

MAKE YOUR OWN BUBBLES	TRACK AND GRAPH THE TEMPERATURE	BUILD A SOLAR OVEN TO COOK HOT DOGS & MARSHMALLOWS
PLAN A FANTASY VACATION	BUILD A MARBLE RUN	BUILD A FORT
CREATE SUN ART	MAIL A LETTER	TAKE & EDIT PHOTOS
TRACK YOUR EXERCISE	MAKE PLAY DOUGH	HOST A SUMMER TOURNAMENT
ENGINEER A NEW WATER PARK RIDE	DESIGN A NEW MUSICAL INSTRUMENT	EARN SOME MONEY
SPEND SOME CASH	LEARN TO CODE	CREATE A SCULPTURE USING ONLY RECYCLED MATERIALS
OBSERVE THE NIGHT SKY	WRITE & PERFORM A PLAY	USE A MAP
MAKE A SUNDIAL	MAKE SCRATCH-BOARD ART	DETERMINE THE BEST PAPER AIRPLANE DESIGN
PLANT A GARDEN	COOK A FUN RECIPE AND DOUBLE IT	TRY READING A NEW GENRE
GO ON A NATURE HIKE	MAKE A TREASURE MAP	LEARN TO COUNT IN A NEW LANGUAGE

MAKE YOUR OWN BUBBLES: MIX 4 CUPS VERY WARM WATER, 1/2 CUP LIGHT CORN SYRUP, AND 2/3 CUP LIQUID DISH SOAP. BEND PIPE CLEANERS TO MAKE BUBBLE WANDS. **BUILD A SOLAR OVEN TO COOK HOT DOGS & MARSHMALLOWS:** SEARCH FOR DIFFERENT DESIGN IDEAS ONLINE. USE PLASTIC WRAP AND ALUMINUM FOIL TO TRAP HEAT INSIDE A BOX. **PLAN A FANTASY VACATION:** USE TRAVEL WEBSITES TO PLAN A TRIP ANYWHERE IN THE WORLD. CREATE AN ITINERARY AND A BUDGET. WHERE WILL YOU STAY? WHAT WILL YOU EAT? WHAT FUN ACTIVITIES WILL YOU DO? HOW MUCH WILL THE WHOLE TRIP COST? **TRACK AND GRAPH THE TEMPERATURE:** CREATE A TABLE AND A LINE GRAPH TO RECORD AND TRACK THE DAILY HIGH AND LOW TEMPERATURES FOR A WEEK OR THE HOURLY TEMPERATURE THROUGHOUT ONE DAY. **BUILD A FORT:** INSIDE OR OUTSIDE, USE YOUR CREATIVITY AND MATERIALS YOU CAN FIND TO ENGINEER A FUN HIDEOUT. CAN YOU MAKE A ROOF, A DOOR AND WINDOWS? ENJOY A SNACK AND A BOOK INSIDE YOUR FORT. **BUILD A MARBLE RUN:** COLLECT LOTS OF CARDBOARD TUBES. USE PAINTERS TAPE TO ATTACH THEM TO A WALL IN A ZIG-ZAG PATTERN. RELEASE A MARBLE INTO THE TOP TUBE. CAN YOU MAKE IT LAND IN A BUCKET AT THE BOTTOM OF THE MARBLE RUN? LOOK ONLINE FOR LOTS MORE FUN MARBLE RUN IDEAS. **TAKE AND EDIT PHOTOS:** LEARN HOW TO MAKE THE MOST OF THE FUNCTIONS ON YOUR DIGITAL CAMERA OR THE CAMERA ON YOUR ELECTRONIC DEVICE. TRY TURNING THE FLASH ON OR OFF, LOCKING THE FOCUS, AND CHANGING THE EXPOSURE. LEARN ABOUT COMPOSURE TECHNIQUES LIKE LEADING LINES AND THE RULE OF THIRDS (JUST DO A QUICK ONLINE SEARCH FOR THESE TERMS). THEN USE THE CAMERA APP ON YOUR DEVICE OR ANOTHER ONLINE APP LIKE SNAPSEED OR PIXLR TO ENHANCE YOUR PHOTOS. **TRACK YOUR EXERCISE:** WHAT'S YOUR FAVORITE WAY TO MOVE? MAKE A CHART OR A GRAPH TO TRACK ACTIVITIES LIKE HOW MANY MINUTES YOU WALK EACH DAY, HOW MANY PUSHUPS YOU CAN DO WITHOUT STOPPING, OR HOW MANY TIMES YOU VISIT THE POOL EACH WEEK. **CREATE SUN ART:** PLACE A NEW SHEET OF DARK CONSTRUCTION PAPER INSIDE A CLEAR PLASTIC BAG. USE ANOTHER PIECE OF PAPER TO CUT DIFFERENT SHAPES. TAPE OR GLUE THOSE SHAPES TO THE OUTSIDE OF THE PLASTIC BAG. HANG THE BAG IN A VERY SUNNY WINDOW WITH THE SHAPES FACING OUTSIDE. LEAVE THE BAG THERE FOR SEVERAL DAYS OR WEEKS UNTIL THE PAPER BEGINS TO FADE. WHEN YOU REMOVE THE PAPER FROM THE BAG, YOU SHOULD SEE "SHADOWS" OF THE SHAPES. **MAIL A LETTER:** HANDWRITE A LETTER OR MAKE A CARD FOR SOMEONE SPECIAL. WRITE THE RECIPIENT'S ADDRESS ON AN ENVELOPE AND SEND IT VIA "SNAIL MAIL" AS A SPECIAL SURPRISE. **DESIGN A NEW MUSICAL INSTRUMENT:** USE RECYCLED MATERIALS TO DESIGN AND MAKE YOUR OWN MUSICAL INSTRUMENT. CAN YOU MAKE AN INSTRUMENT THAT CAN PLAY AT LEAST THREE NOTES? CAN YOU CREATE A NEW PERCUSSION INSTRUMENT? **MAKE PLAY DOUGH:** MIX 1 PART SALT, 1 PART WARM WATER, AND 2 PARTS FLOUR. ADD FOOD COLORING. YOU CAN HARDEN YOUR CREATIONS BY BAKING THEM AT 200°F FOR 1-3 HOURS, OR UNTIL THEY ARE DRY. **HOST A SUMMER TOURNAMENT:** INVITE FRIENDS OR FAMILY MEMBERS TO COMPETE IN EVENTS LIKE A WATER BALLOON TOSS, THREE-LEGGED RACE, OR OBSTACLE COURSE CHALLENGE. USE MEASUREMENT AND MATH SKILLS TO KEEP SCORE AND CROWN AN ULTIMATE CHAMPION. **ENGINEER A NEW WATER PARK RIDE:** BUILD A MODEL OF A FUN NEW WATER PARK ATTRACTION. MAKE A MINIATURE MODEL WITH RECYCLED MATERIALS OR A LARGER MODEL TO TEST OUTSIDE. **EARN SOME MONEY:** HOST A BAKE SALE, START A LEMONADE STAND, DO SOME YARD WORK, OR THINK OF ANOTHER WAY TO PROVIDE GOODS & SERVICES TO PAYING CUSTOMERS. KEEP TRACK OF YOUR BUSINESS COSTS, EARNINGS AND PROFITS. **CREATE A SCULPTURE USING ONLY RECYCLED MATERIALS:** CAN YOU CREATE WORKS OF ART THAT ARE 1) MADE FROM ONLY ONE MATERIAL? 2) TALLER THAN YOU? 3) WEATHER-PROOF? **OBSERVE THE NIGHT SKY:** LOOK FOR THE MOON EACH DAY OR NIGHT. CAN YOU PREDICT WHEN YOU'LL BE ABLE TO SEE IT AND WHAT SHAPE IT WILL APPEAR? USE AN APP LIKE NIGHT SKY OR SKY MAP TO IDENTIFY PLANETS AND STARS. SUMMER IS A GREAT TIME TO SEE METEORS AND COMETS! **LEARN TO CODE:** GO TO SCRATCH.MIT.EDU TO PROGRAM YOUR OWN GAME. **SPEND SOME CASH:** IF YOU'VE EARNED SOME MONEY, HOW WILL YOU SPEND IT? WHEN YOU MAKE A PURCHASE, CALCULATE HOW MUCH CHANGE YOU'LL RECEIVE. **WRITE AND PERFORM A PLAY:** ADAPT A FAVORITE STORY, OR WRITE YOUR OWN PLOT. MAKE FANCY COSTUMES, SCENERY, AND PROPS OR KEEP IT SIMPLE. PERFORM FOR A LIVE AUDIENCE, OR PRODUCE A VIDEO RECORDING. **USE A MAP:** TRACK YOUR MOVEMENTS AND PLAN YOUR ROUTE AROUND TOWN, AT AN AMUSEMENT PARK, OR ON A LONG TRIP. CAN YOU DETERMINE HOW FAR YOU'VE TRAVELED? **MAKE A SUNDIAL:** STAND OUTSIDE IN A LARGE, SUNNY SPOT IN THE MORNING. USE CHALK OR STONE TO MARK YOUR STANDING SPOT AND YOUR SHADOW. STAND IN THE SAME SPOT AND MARK YOUR SHADOW THROUGHOUT THE DAY. **MAKE SCRATCH-BOARD ART:** FILL AN ENTIRE PIECE OF PAPER WITH COLORFUL SHAPES USING CRAYONS. THEN COLOR OVER YOUR ENTIRE DESIGN WITH BLACK CRAYON. PRESS HARD! FINALLY, USE THE END OF A POPSICLE STICK TO SCRATCH OFF SOME OF THE BLACK. YOU CAN CREATE BEAUTIFUL PICTURES OR ABSTRACT DESIGNS. **DETERMINE THE BEST PAPER AIRPLANE DESIGN:** DOES "BEST" MEAN FARTHEST DISTANCE, LONGEST FLIGHT TIME, OR SOMETHING ELSE? LOOK UP SEVERAL PATTERNS FOR PAPER AIRPLANES, OR CREATE YOUR OWN. SET UP A FAIR EXPERIMENT TO SEE WHICH DESIGN FLIES BEST. **PLANT A GARDEN:** PLANT SEEDS IN SMALL CUPS TO KEEP ON A WINDOW SILL, OR CARE FOR PLANTS IN POTS OR IN THE GROUND OUTSIDE. KEEP A JOURNAL OF OBSERVATIONS ABOUT YOUR PLANT. **COOK A FUN RECIPE & DOUBLE IT:** PUT YOUR MEASUREMENT AND FRACTION SKILLS TO USE IN THE KITCHEN! **TRY READING A NEW GENRE:** VISIT YOUR LOCAL LIBRARY TO CHECK OUT SOME BOOKS. ENJOY READING YOUR FAVORITES, BUT ALSO TRY SOMETHING DIFFERENT, LIKE HISTORICAL FICTION OR GRAPHIC NOVELS. ASK A LIBRARIAN TO RECOMMEND SOMETHING YOU'D LIKE. **GO ON A NATURE HIKE:** EXPLORE A NEW PLACE IN YOUR COMMUNITY OR VISIT A NEW PARK. LOOK FOR PLACES WHERE HUMANS HAVE IMPACTED THE ENVIRONMENT IN BOTH POSITIVE AND NEGATIVE WAYS. IS THERE ANYTHING YOU CAN DO TO TAKE CARE OF NATURE? **MAKE A TREASURE MAP:** CHOOSE A HIDING PLACE FOR A SPECIAL TREASURE. MAKE A MAP AND WRITE SOME RIDDLE CLUES THAT LEAD TO YOUR TREASURE. CAN A FRIEND OR FAMILY MEMBER FIND IT? **LEARN TO COUNT IN A NEW LANGUAGE:** ASK A FRIEND OR NEIGHBOR TO TEACH YOU TO COUNT TO 10 IN A DIFFERENT LANGUAGE, OR LOOK UP THE WORDS ONLINE. PRACTICE ANYTIME YOU COUNT OR ADD.