

RIVERS, STREAMS & VALLEYS

LEARNING OBJECTIVES

1. RIVER, VALLEY FORMATION AND WATER CYCLE
2. LEARN AND USE GEOGRAPHICAL VOCABULARY
3. DISCOVER AND FOLLOW A LOCAL RIVER OR STREAM

VALLEYS

OVER TIME STREAMS AND RIVERS CARVE THEIR WAY THROUGH THE EARTH, ERODING SOILS AND ROCKS AND CREATING VALLEYS. THIS PROCESS TAKES MILLIONS OF YEARS. VALLEYS ARE USUALLY NARROW WHEN FIRST FORMED AND MOST, OVER TIME, BECOME DEEPER AND WIDER. SOME VALLEYS ARE NOT FORMED BY RIVERS BUT BY GLACIERS, LARGE SLOW MOVING BODIES OF ICE. AS THE GLACIERS MOVE THEY DRAG BOULDERS AND SOIL ACROSS THE LAND. THE DEVIL'S KNEADING TROUGH NEAR WYE IS A NATIONALLY IMPORTANT PERIGLACIAL SITE, MEANING IN THE ICE AGES THE LAND WAS SUBJECT TO REGULAR FREEZING AND THAWING, SHAPING THE LANDSCAPE WITH HOLLOWES. OTHER VALLEYS ARE FORMED BY TECTONIC MOVEMENTS IN THE EARTH'S CRUST.

ACTIVITY

DO YOU HAVE A RIVER OR STREAM LOCAL TO YOU? USING A MAP, LIKE THE ORDINANCE SURVEY MAP, LOCATE THE COURSE OF A NEARBY RIVER OR STREAM. CAN YOU TRACE THE SOURCE OF THE WATER? NOW PLAN A WALKING ROUTE TO FOLLOW THE WATERWAY FROM SOURCE TO MOUTH, AS CLOSELY AS POSSIBLE USING PUBLIC FOOTPATHS. WHEN YOU'RE READY SET OFF AND EXPLORE THE WATERWAY AND THE PHYSICAL FEATURES IT CREATES IN THE LANDSCAPE. USE THE LIST OF KEY WORDS TO HELP YOU IDENTIFY FEATURES. YOU MAY DISCOVER PIECES OF HUMAN ENGINEERING AND HISTORICAL USES OF WATER ON THE WAY, LIKE MILLS, OR TRACES OF THIS HISTORY LIKE STREET NAMES. CREATE A RECORD OF YOUR WALK.

YOU WILL NEED

- A MAP OF YOUR LOCAL AREA
- APPROPRIATE CLOTHING AND PREPARATIONS FOR A WALK

CHALK STREAMS

WHEN RAIN FALLS ON THE THIN DOWNLAND SOILS OF THE HILLS IN THE GEOPARK, IT SEEPS UNDERGROUND THROUGH THE POROUS CHALK. WHERE THE PERMEABLE CHALK MEETS THE UNDERLYING IMPERMEABLE CLAY, THE WATER IS FORCED OUT AND SPRINGS DEVELOP. THIS SURFACE WATER THEN CREATES CHALK STREAMS, HOME TO A VARIETY OF PLANTS AND ANIMALS INCLUDING:

FISH TROUT
BIRDS KINGFISHER
INSECTS CADDISFLY LARVAE
PLANTS IRIS
SMALL MAMMALS WATER VOLES

CHALK STREAMS ARE INCREDIBLY RARE ON PLANET EARTH, WITH THE MAJORITY SITUATED IN ENGLAND AND MANY OF THESE IN THE SOUTH EAST OF THE COUNTRY.

WINTERBOURNE

A WINTERBOURNE IS A SEASONAL CHALK STREAM. THIS MEANS IT MAY FLOW FULLY DURING WET WINTERS, BUT PARTS OF IT MAY DRY UP AND DISAPPEAR FOR THE SUMMER OR EVEN FOR YEARS AT A TIME IN DRIER WEATHER.

SPRINGLINE

THE SPRINGS THAT FORM AT THE JUNCTURE BETWEEN THE CHALK AND CLAY LAYERS CAN BE SEEN ACROSS THE KENT DOWNS. WITH EASY ACCESS TO FRESH WATER, HUMAN SETTLEMENTS HAVE OFTEN FORMED AROUND THESE SPRINGS, LATER BECOMING VILLAGES. THESE ARE KNOWN AS SPRINGLINE SETTLEMENTS.

READ MORE ABOUT CHALK STREAMS AND AQUIFERS ON OUR 'WHAT IS CHALK' RESOURCE

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KEY WORDS

GEOLOGY-

THE SCIENCE OF THE EARTH'S PHYSICAL STRUCTURE AND SUBSTANCE, ITS HISTORY, AND THE PROCESSES THAT ACT ON IT.

HYDROGEOLOGY

THE STUDY OF WATER FLOW UNDERGROUND AND ON THE SURFACE OF THE EARTH, AND ITS USES.

TOPOGRAPHY-

THE PHYSICAL FEATURES OF AN AREA.

SPRING-

THE POINT AT WHICH GROUNDWATER EXITS FROM AN AQUIFER AND FLOWS OUT ON THE EARTH'S SURFACE. SPRINGS HAVE LONG BEEN IMPORTANT FOR HUMANS AS A SOURCE OF FRESH WATER. SPRINGS ARE DRIVEN OUT ONTO THE SURFACE BY VARIOUS NATURAL FORCES, SUCH AS GRAVITY AND PRESSURE.

AQUIFER-

AN UNDERGROUND LAYER OF PERMEABLE ROCK, WHICH CONTAINS WATER OR ALLOWS WATER TO TRAVEL THROUGH IT.

SOURCE-

THE SOURCE IS THE BEGINNING OF A STREAM OR RIVER.

MOUTH-

WHERE A RIVER MEETS THE SEA. MUD IS DEPOSITED AT THE RIVER'S MOUTH.

ESTUARY-

A WIDE RIVER MOUTH. THE AREA WHERE A RIVER MEETS THE SEA OR OCEAN, WHERE FRESH WATER FROM THE RIVER MEETS SALT WATER FROM THE SEA.

TIDAL POOL-

SHALLOW POOL OF SEAWATER THAT FORMS NEAR THE SHORE, THESE POOLS CAN EXIST AS SEPARATE BODIES OF WATER AT LOW TIDE.

COURSE-

THE PATH, ROUTE, CHANNEL, OR DIRECTION BY WHICH THE WATER MOVES.

BED-

THE BOTTOM OF THE RIVER OR A BODY OF WATER.

INLET-

AN INDENTATION OF A SHORELINE, USUALLY LONG AND NARROW.

SEDIMENT-

SMALL PARTICLES OF SOIL OR ROCKS THAT ARE TRANSPORTED BY WATER OR THE WIND.

SILT-

SILT IS VERY TINY PARTICLES OF SOIL OR ROCKS.

VALLEY-

A DEPRESSION, OR LOW POINT, BETWEEN UPLANDS, HILLS, OR MOUNTAINS, FOLLOWING THE COURSE OF A STREAM OR RIVER.

ESCARPMENT-

CLIFFLIKE RIDGE OF LAND OR ROCK, COMMONLY FORMED BY FAULTING OR FRACTURING OF THE EARTH'S CRUST.

PERMEABLE-

A MATERIAL THAT ALLOWS LIQUIDS OR GASES TO PASS THROUGH IT.

WATER TABLE-

THE LEVEL BELOW WHICH THE GROUND IS SATURATED WITH WATER.

CULVERT-

A STRUCTURE LIKE A DRAIN OR PIPE THAT CHANNELS WATER PAST AN OBSTACLE LIKE A ROAD OR PAVED AREA. MANY STREAMS AND RIVERS ARE CULVERTED AND FLOW BENEATH OUR STREETS.

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