



Why Do Most Plants Need Soil?



by Ellen Lawrence

[Intentionally Left Blank]



Why Do Most Plants Need Soil?

by Ellen Lawrence

Consultant:

Shawn W. Wallace

Department of Earth and Planetary Sciences
American Museum of Natural History
New York, New York

BEARPORT
PUBLISHING

New York, New York

Credits

Cover, © Romolo Tavani/Shutterstock; 4, © Bonnie Fink/Shutterstock; 5, © Jorg Hackemann/Shutterstock, © Tom Reichner/Shutterstock, © MVPhoto/Shutterstock, and © D. Kucharski K. Kucharska/Shutterstock; 6T, © Shi Yali/Shutterstock; 6B, © Dino Martino Photography/Shutterstock; 7, © Andreas Altenburger/Shutterstock; 8, © Filipe B. Varela/Shutterstock; 9, © maxhomand/iStock and © Orla/Shutterstock; 10, © Aggie II/Shutterstock; 11, © tormentor3/Shutterstock; 12, © Casther/Shutterstock; 13, © Hugh Lansdown/Shutterstock and © Dr. Jeremy Burgess/Science Photo Library; 14L, © Hhelene/Shutterstock; 14R, © Richard Griffin/Shutterstock; 15, © Peter Etchells/Shutterstock; 16T, © Tanor/Shutterstock; 16B, © Drew Fitzgibbon/Shutterstock; 17, © Cody H.; 17TR, © hwongcc/Shutterstock; 18, © Wayne Hutchinson/FLPA; 19, © John Eveson/FLPA; 20T, © Jose Ignacio Soto/Shutterstock; 20B, © Vlad Teodor/Shutterstock; 21, © Viorel Sima/Shutterstock; 22, © Ruby Tuesday Books, © Ekaterina Garyuk/Shutterstock, and © Africa Studio/Shutterstock; 23TL, © Krit Leoniz/Shutterstock; 23TC, © Gunnar Pippel/Shutterstock; 23TR, © Thalang Itsaranggura/Shutterstock; 23BL, © Blue Sky Studio/Shutterstock; 23BC, © FotograFFF/Shutterstock; 23BR, © varuna/Shutterstock.

Publisher: Kenn Goin

Senior Editor: Joyce Tavalacci

Creative Director: Spencer Brinker

Design: Emma Randall

Photo Researcher: Ruby Tuesday Books Ltd

Library of Congress Cataloging-in-Publication Data

Lawrence, Ellen, 1967– author.

Why do most plants need soil? / By Ellen Lawrence.

pages cm. — (Down & dirty : the secrets of soil)

Summary: "In this book readers will learn why plants need soil."— Provided by publisher.

Audience: Ages 4–8

Includes bibliographical references and index.

ISBN 978-1-62724-837-2 (library binding) — ISBN 1-62724-837-4 (library binding)

I. Plant-soil relationships—Juvenile literature. 2. Plants—Juvenile literature. 3. Soil biology—Juvenile literature. I. Title.

S59L3.L39 2016

580—dc23

2015015257

Copyright © 2016 Bearport Publishing Company, Inc. All rights reserved. No part of this publication may be reproduced in whole or in part, stored in any retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from the publisher.

For more information, write to Bearport Publishing Company, Inc., 45 West 21st Street, Suite 3B, New York, New York 10010. Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1



Contents

Parts of a Forest	4
What Is Soil?.....	6
Support from the Ground Up.....	8
Soil, Water, and Roots	10
Getting Nutrients	12
Starting Out as Seeds.....	14
No Soil?	16
Poor Soil, Healthy Soil.....	18
Food and Soil.....	20
Science Lab.....	22
Science Words	23
Index	24
Read More	24
Learn More Online	24
About the Author	24

Parts of a Forest

Tall, leafy trees grow in a forest.

Birds, squirrels, and insects make their homes in the trees.

Beneath the trees are ferns, wildflowers, and other small plants.

There's one important part of the forest, however, that doesn't often get noticed—the soil.

Without soil, the forest would not exist. Let's find out why.



What do you think soil is made of?



squirrel



woodpecker

Millions of
tiny creatures
such as worms,
beetles, and ants live
on the ground and
in the soil of
a forest.



worm

What Is Soil?

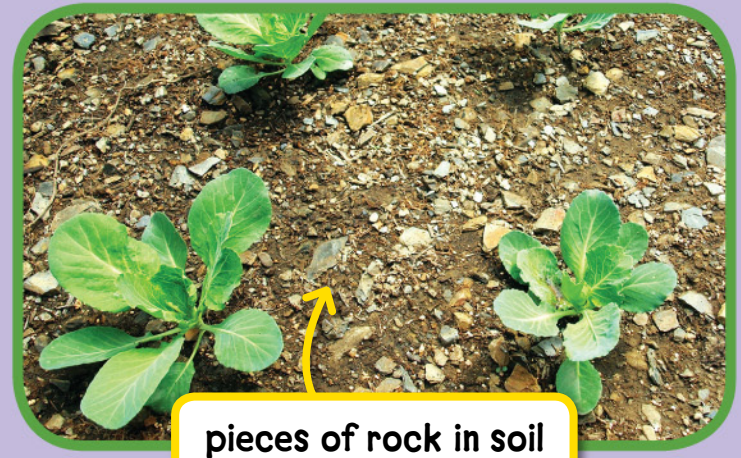
Most plants, including trees, need soil in order to live and grow.

So what is soil made of?

The main **ingredient** is tiny pieces of rock.

Soil is also made from bits of dead plants.


When plants die or leaves fall from trees, they rot and become part of the soil.



pieces of rock in soil



rotting leaves

A photograph of a dead owl lying on its back on a forest floor covered in fallen leaves. The owl's wings are spread out, showing brown and white patterned feathers. Its head is turned to the right, and its eyes are visible. The surrounding environment is a forest floor with various shades of brown, orange, and green leaves.

When a
bird or other
animal dies, its body
rots. Then tiny pieces of
feathers or fur, bones,
and other body parts
become part of
the soil.

a dead owl in a forest

Index

animals 4–5, 7, 12, 19, 21	dung 19	roots 8–9, 10, 12–13, 14, 16
carbon dioxide 11	epiphytes 16–17	seeds 14–15, 22
compost 18	farmers 18–19, 20	sunlight 11
crops 18–19, 20	nutrients 12–13, 14, 18–19	trees 4–5, 6, 9, 10, 13, 16
dead plants 6, 12, 18	rock 6	water 10–11, 13, 14, 16–17

Read More

Flanagan, Alice K. *Soil (Simply Science)*. Minneapolis, MN: Compass Point Books (2001).

MacAulay, Kelley. *Why Do We Need Soil? (Natural Resources Close-Up)*. New York: Crabtree (2014).

Waldron, Melanie. *Roots (Plant Parts)*. North Mankato, MN: Heinemann-Raintree (2014).

Learn More Online

To learn more about plants and soil, visit
www.bearportpublishing.com/Down&Dirty

About the Author

Ellen Lawrence lives in the United Kingdom. Her favorite books to write are those about animals and nature. In fact, the first book Ellen bought for herself, when she was six years old, was the story of a gorilla named Patty Cake that was born in New York's Central Park Zoo.

[Intentionally Left Blank]



Why Do Most Plants Need Soil?

A tiny seedling pushes up out of the soil. Its roots spread out underground in search of water and nutrients. One day, the little plant will be a big, strong tree. None of this would be possible without soil! Look inside to learn what soil is made of and why most plants need it to live and grow. Along the way, you'll also discover strange plants that don't need any soil at all!

Dirt or Soil:

What's the Difference?

How Do Animals Help Make Soil?

Is All Soil the Same?

What's Soil Made Of?

Why Do Most Plants Need Soil?

BEARPORT
PUBLISHING

www.bearportpublishing.com



ISBN-13: 978-1-62724-837-2



9 781627 248372

90000

