



Guide to using the Scholastic Seed Kit

Trees
of Panama
and the Neotropics



10 reasons to plant trees

1. They conserve energy and save money.

Trees provide shade, lower temperatures, prevent evaporation and add moisture to the air. The difference in temperature between an area with trees and one without trees can be as much as 10 degrees centigrade. It's time to plant more trees and use less air conditioning!

2. They clean the environment.

Trees produce the oxygen we breathe and also remove pollutants from the air by adhering contaminant particles to the surface of their leaves, where they are washed away by the rain. The trees in your park are protecting you from the carbon monoxide produced by cars!

3. A tree is much more than a tree: it is home to hundreds of species.

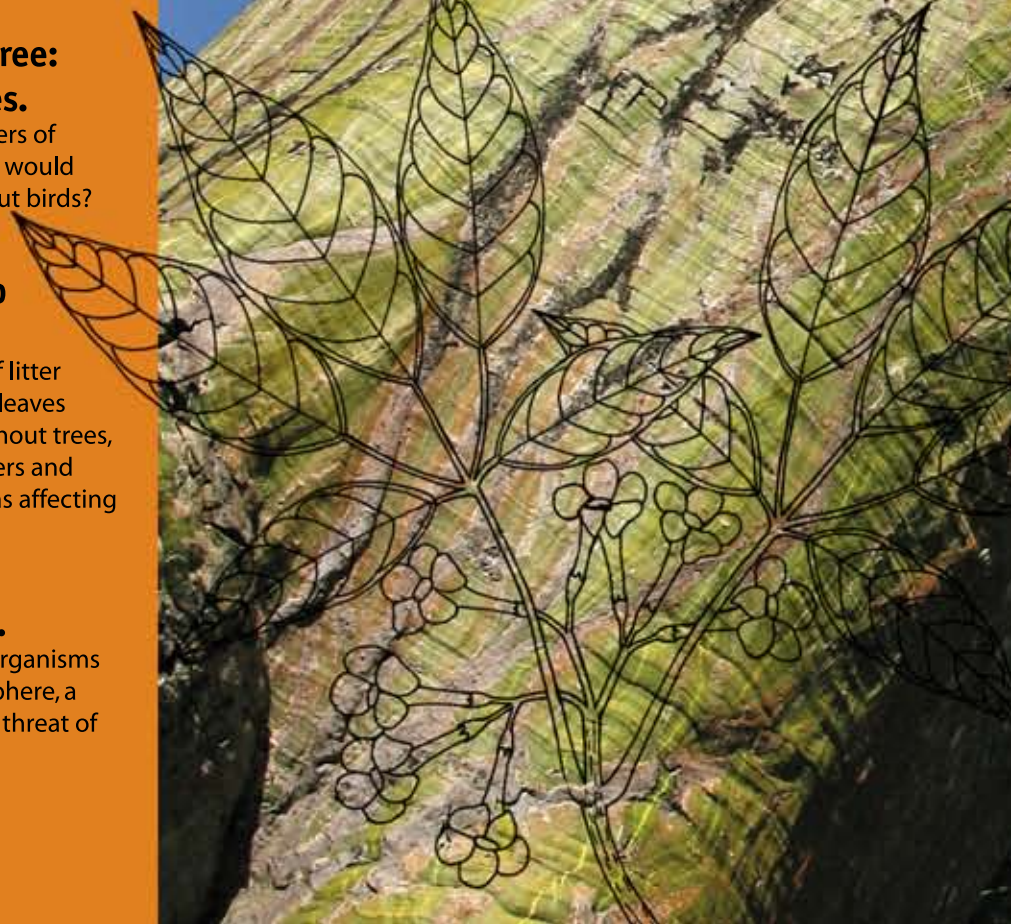
Trees provide food and shelter to large numbers of animals and other plants. Without trees, birds would have no refuge. Can you imagine a city without birds?

4. They reduce erosion and help clean our rivers and lakes.

Tree roots help bind the soil together, and leaf litter enriches the soil as it decomposes. Branches, leaves and trunks help buffer the wind and rain. Without trees, soil is washed away by the rain, muddying rivers and lakes and making life difficult for fish, as well as affecting the drinking water supply.

5. They combat global warming.

Plants, through photosynthesis, are the only organisms that remove carbon dioxide from the atmosphere, a substance which contributes to the grave threat of global warming.



6. They favor the presence of water.

Trees, by improving soil quality, favor the filtration of rainwater to underground layers. And in order to transport water to the highest leaves, trees "suck up" water with the help of the transpiration taking place in their leaves. It is estimated that a single tree can release up to 30 liters of water a day.

7. They provide economic benefits.

Properties in neighborhoods with trees and parks have greater value, and workers are more productive in workplaces with a view of green areas. Do students study harder in schools where there are trees in the courtyards?

8. They reduce noise.

Trees create a barrier to sound by limiting the intensity. If there are trees around schools, the noise of passing vehicles will not disturb the classroom as much.

9. They beautify our world and create a better environment for our health.

With their lush green foliage and beautiful flowers, trees add beauty to our community. The beauty of natural areas provides us with relaxation and emotional well-being.

10. They're fun!

Planting and caring for trees is a great family and community activity. You will enjoy watching them grow and feel proud when, in the future, you see the trees you planted providing shade and fresh air.

One ton of
recycled paper
saves 17 trees.

The seeds *in this kit*

The seeds in this kit
come from 3 species
of trees, all native to
Panama:

Guayacán (*Tabebuia guayacan*)

- Reaches over 30 meters in height, with a straight trunk up to 1 meter in diameter.
- Its yellow flowers, which completely cover the crown of the tree, are spectacular.
- Its scientific name comes from the aboriginal word *taiaveruia*, which means ant wood, possibly because of the presence of ants in hollow branches of the tree.
- Almost 100 years after the forest was flooded to form Gatun Lake in the Panama Canal, almost all of the trunks that are still standing underwater are guayacans.



Learn more
about these native trees
by reading the series "*Trees
of Panama and
the Neotropics*" in Sunday
editions of *La Prensa*,
beginning August
22, 2010.

Trees
of Panama
and the Neotropics



Roble (*Tabebuia rosea*)

- The roble is from the same family as the guayacán and the totumo.
- Its leaves look like the fingers of a hand, and fall off during the dry season.
- The flowers can be white or pink, and are visited by bees, butterflies and hummingbirds.
- In South America, the bark of this and other species of *Tabebuia* are used to extract "lapachol", which has antiviral, antifungal and anticancer properties.



Palo Bobo (*Erythrina fusca*)

- From 10 to 20 meters tall, sheds its leaves during the dry season and replaces them at the beginning of the rainy season.
- Also known as the pito, gallito or palo santo.
- Used for forage and for living fence posts, as well as for ornamental purposes due to its beautiful orange flowers.



Plant trees and
cultivate citizens

GRUPO **REY**

Plant *your native* tree



1. Plant

Seeds need water, light and soil in order to germinate. Sow each seed "lying" on its broadest side in the sections of an egg carton, or in the newspaper planter we show you how to make on pages 8 and 9. You will have to wait approximately 4 weeks for the seeds of the palo bobo or guayacán to germinate, and 2 weeks for the roble. It is normal for some seeds to germinate while others do not.

2. Care

Cover the seeds with just 3 millimeters of soil or river sand; that way, when the first leaves appear, it will not be too difficult for them to reach the light. Water the soil whenever it is dry. The secret is balance: avoid too much water or too little.

3. Repot

Wait until the plants are at least 5 cm tall or have their second pair of leaves before repotting them in a bigger container, such as a pot or plastic bag. They must be repotted or transplanted very gently. The soil must be moist; use a pencil or a toothpick to loosen the soil around the roots. Lift the plant by the base of the stem, making sure not to break off any of the roots. Be sure that the new container has the necessary amount of soil.

4. Care

Before being planted in the field, your tree must remain in its new container until it measures about 30 centimeters (from 2 to 4 months). Remember that the container needs to have some holes for water to drain off. Again, water each time the soil is dry.

5. Transplant

Your tree should be replanted at least one month after the rainy season begins. This is approximately in June or July. That way, you will be sure that the soil is moist enough and the climate will be favorable long enough for the tree to grow and become strong before the next dry season. Otherwise, you will have to plant it somewhere where you can continue caring for it.

6. Care and enjoy

It would be great if you have the opportunity to watch your tree grow. You can put fertilizer or black soil around it from time to time, so that it continues to grow strong.



Paper makes up
1/4th of the trash
produced in schools

GRUPO REY

Make a *container* for germinating seeds

You can sow your seeds in containers you recycle at home, such as a can or a used tetra pak. Here, we show you how to make a container from newspaper for germinating your seeds.

You will need:

- An Aprendo supplement or a piece of newspaper of similar size.
- A round container, such as a used can
- Adhesive tape

FEWER TREES
+
CONTAMINATION
= LESS LIFE
LET'S PLANT!

GRUPO REY

Procedure:

1. Remove the staples from 2 pages of the Aprendo supplement and fold them in half lengthwise.

2. Wrap the pages around the container, with the paper extending about an inch beyond the bottom edge of the can.



4. Fold the bottom edge of the paper over the container. Use more adhesive tape to fasten the bottom. Slide the newspaper planter off the can, add soil and plant your seed.

3. After wrapping, fasten the pages with adhesive tape.



Game time!

Leafy alphabet soup

Find these native trees of Panama and the Neotropics

A O J Y G G E I P L G L J K H P G S C D G E J S T C G Y
J I A R A C R E O A E A S I J O T A D F U C I E R D P F
G J H E R O T R A D R S A J U I R A S G I S F A D E O R
I U S G U A C I M O C O L O R A D O E S F D R D E S I A
O T G A A C D R E K T P L E T D M L A T T A E R S A U T
S D E S Ñ F F E T U A A A R R S C O R E R F D E A P H S
J A Y L L D E D S A R O K D E A S I S R D S S F I A Y F
E B D K S S R S R J S A S S D M A J D O H R A S O N T E
O A I D K A S O D S F K J A S A D U F B O E O O P A R P
F L O O D I A P F H E S D F A R E Y E O P I P P H M A L
H O P Ñ N U E L E E O U H G F I R T T B S O N I G A F O
A A F A F J S A O O H D E T G L S F D O D L L J F L S B
S R G E O H P I N C S H Y R O L F D G L E J B U S O L O
J S T I A N A C A Y A U G E P O T S J A R H C H L P K N
H E R Ñ A I V A A F G F O S L S H V U P C D S F O H N I
G I D A N U E S S D J D I D I D I X O T V R O B L E C P
E O A L N A B L D S H S U P S F O C P F O H B C A S V S
I S B K E E V K G U A B I T A C A N S A B O C A S E F E
S F A S I B I D A V O E S J O P O B C L B P G C F R S O
U E L I D S U J S N I I J H C O C O B O L O T D D S R R
S S S E N O I F O R D O O J D E B A T F E D F S O A D D
I I O N S I A O F I G N P H S R T S R S R S R E N D I E
O B S S S V E S N I N A L F A T U D E E T A D R D L O C

Be green,
care for
the environment.

GRUPO REY

PANAMA • ROBLE • GUAYACAN • COCOBOLO • CEDRO ESPINO
• ESPAVE • AMARILLO • BALSO • GUACIMO COLORADO
• PALO BOBO • BALO • GUABITA CANSABOCA

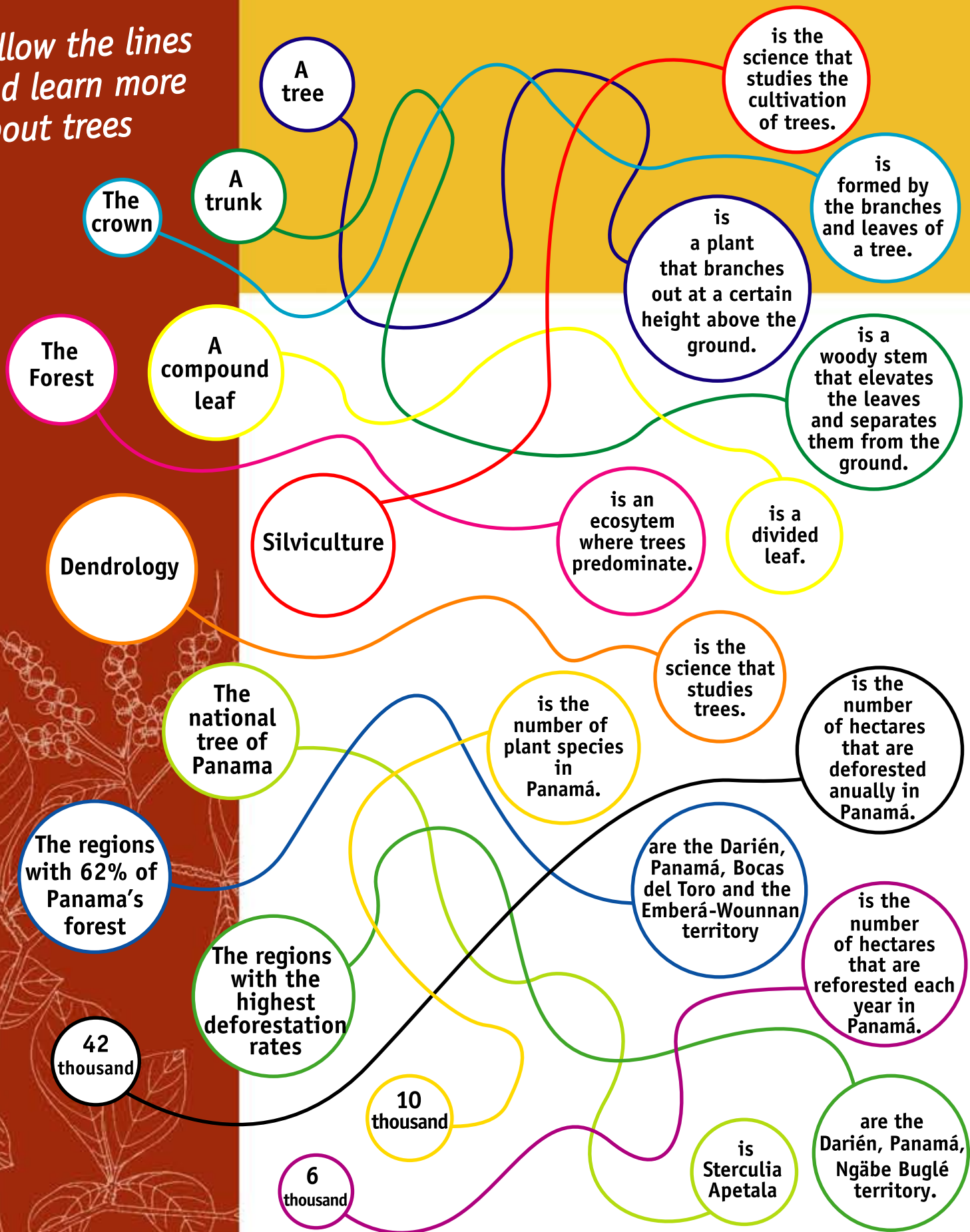
R. PEREZ

Maze

Help David find his seeds so he can plant them.



*Follow the lines
and learn more
about trees*



Riddles

Without air I cannot live;
without earth I die;
I have buds but I'm not a rose,
and a crown but I'm not a king.

There are those who drink
with their mouths,
which is the proper way to drink,
but I know of someone
who only drinks with his feet.

He is a great gentleman,
with a green hat
and brown pants.

(answer to all three riddles: a tree)

Order and divide

Put these native trees of Panama in alphabetical order and divide them into syllables: Panamá, roble, guayacán, cocobolo, cedro, espino, espavé, amarillo, balso, guácimo colorado, palo bobo, balo, guabita cansaboca.

1. _____

5. _____

9. _____

2. _____

6. _____

10. _____

3. _____

7. _____

11. _____

4. _____

8. _____

12. _____

Jokes

What did one tree say to the other?
We've been stood up.

Two crazy men escape from the
insane asylum in a car. One says to
the other: Look how fast the trees
are going past! And the other answers:
Next time, we'll escape by tree!



Courses and seminars



CREATING WITH TREES (Grades IV to VI)

Program content: art with recycled materials.

Learning objective: *assorted handcrafts using the leaves, seeds and flowers of trees, showing the importance of recycling.*

Cost: B/. 2.00 per child. Limited spaces available. Includes materials.

Duration: 3 hours

Dates:

- David: September 2
- Chitré: September 15
- Santiago: September 16

More information: escuelas@prensa.com

BiOMUSEO

SEEDS AND PITS (beginning in August, 2010)

Program content:

- Grades I-III: Classification of living beings.
- Grades IV-VI: Plant reproduction and dissemination.

Learning objective: *To observe the morphological characteristics of tree seeds and relate them to their function.*

Duration: 2 hours

Requirements:

The school and/or teacher must participate in a meeting prior to the visit.

More information: asautu@biomuseopanama.org or 314-0097

If the world isn't
worth your effort,
what is?

GRUPO **REY**

Look for more information on the trees of Panama at:
http://www.stri.org/espanol/arboles_panama/





Smithsonian

NATURE EXPLORERS

(Grades II and III)

Program content: Plant classification.

Learning objective: To observe the morphological characteristics of plants.

THE BOTANICAL DETECTIVE (Grade V)

Program content:

Lowland vegetation, deforestation and conservation.

Learning objective: To identify at least 5 trees from Panama's dry forest, define a dry forest and its characteristics, discuss land uses.

IN THE SHADOW OF DEFORESTATION

(Grades VII to XII)

Program content: Deforestation and conservation.

Learning Objective: To define a dry forest, analyze the importance of trees to the ecosystem and to human beings, recognize the relationship/interdependence between trees and forest organisms.

THE CARBON CRUNCHERS

(Grades IV to VII)

Program content: Climate change and global warming.

Learning Objective: To understand the relationship and importance of trees in capturing and storing carbon dioxide from the air.

Location of all Smithsonian Institute workshops:

Punta Culebra Nature Center (Amador Causeway)

Duration: 1.5 hours each.

For reservations: 212-8793

Credits

Guide to using the Scholastic Seed Kit

Coordination:

For the **BioMuseum:**

Adriana Sautú

For the **Smithsonian Tropical**

Research Institute:

Mónica Alvarado

For **Aprendo/La Prensa**

Wendy Tribaldos

Texts:

Adriana Sautú y Wendy Tribaldos

Design:

Alexander Arosemena

Proofreading

Luzmila de Flamarique

We appreciate the valuable collaboration of:

Native Species Reforestation Project (PROENA), Rivieth De Liones, Jefferson Hall, William Jácome, Gian Montufar, Steve Paton, Michael van Bruegel, Daniela Weber.

Photographs:

Alexander Arosemena, Richard Condit, Rolando Pérez, Carmen Galdames, Marcos Guerra, Andrés Hernández, Steve Paton, Christian Ziegler, Wiki Commons

Model:

David Silverio Pinto

Botanical illustrations:

Rolando Pérez

This document is part of the project "Trees of Panama and the Neotropics", to be published in the Sunday edition of La Prensa newspaper beginning August 22, 2010.

Printed in **Corporación La Prensa, S.A.**

All rights reserved. Reproduction for commercial use prohibited.



**Mamá
¿Traes tu bolsa
reutilizable?**



**Una bolsa puede
ayudar mucho.**

Cerca de 500 mil millones de
bolsas de plástico se consumen
cada año.



Son hechas a base de
petróleo, contribuyendo
al calentamiento global.

Tardan hasta 150 años
en descomponerse.



REDUCE ♻️ REUTILIZA ♻️ RECICLA



Cuando vayas al supermercado
Recuerda a tus padres llevarla

¡Siempre!

GRUPO **REY**