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What Makes Fall Colors?

geographic area. What happens to leaves in the autumn? In summer, leaves are green because of a group of pigments known as chlorophylls. Chlorophylls are vital to the tree's food-making process, called photosynthesis. Leaves manufacture simple sugars from water and carbon dioxide, using energy captured from the sun by the chlorophylls. These sugars are the sole source of the carbohydrates needed for the tree's growth and development.

replaced at a slower rate. Shorter days cause a layer of cork cells to form at the base of each leaf, gradually closing off the flow of water and minerals into the leaf. This is the location where the leaf will eventually separate from the tree and fall to the ground. As the supply of chlorophylls dwindles, other pigments that may have been present in the leaf all along are slowly unmasked and begin to show through.

Unmasked pigments include the carotenoids, which result in brilliant yellows and oranges. Some trees where carotenoids are conspicuous include ash, maple, aspen, birch, black cherry, cottonwood, tulip tree, and sycamore.

Another group of pigments, called anthocyanins, are responsible for the reds, purples, and blended combinations of these colors. Unlike the carotenoids, these pigments have not

been present in the leaf all season. Instead, they develop in late summer in the sap of the leaf cells. Their formation depends on the breakdown of sugars in the presence of bright light while the level of phosphate in the leaf is reduced. Phosphate is at a high level during the growing season, but in autumn it moves out of the leaf and into the stem of the plant. When this happens, the sugar breakdown process changes, leading to the production of anthocyanin pigments. The brighter the light, the more anthocyanins are produced and the more brilliant the color. The brightest colors develop when autumn days are sunny and cool, along with nights that are chilly but not freezing.

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2	3	4	7	3	7	3	8	4	7	4	5	6
T	B	D	T	E	A	C	D	O	K	N	B	F
4	7	4	6	5	3	7	4	5	3	4	5	8
O	E	T	R	R	O	P	H	I	U	E	G	Y
4	2	4	5	8	6	5	4	8	4	7	3	4
S	I	I	H	N	E	T	T	A	A	O	R	T
7	4	3	6	8	2	5	6	5	8	7	5	8
S	E	A	S	M	M	O	H	U	I	I	T	C
7	3	8	6	2	7	3	2	8	6	8	7	3
T	G	C	I	E	I	E	T	A	D	R	V	O
8	5	2	6	5	6	8	6	5	7	2	5	3
E	L	O	E	O	A	E	S	O	E	C	K	U
7	8	7	2	3	2	7	2	7	2	7	2	7
A	R	C	H	S	A	T	N	I	G	O	E	N

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CryptoQuip

This is a simple substitution cipher in which each letter used stands for another. If you think that X equals O, it will equal O throughout the puzzle. Solution is accomplished by trial and error.

Clue: U equals S

DU D UCBOAIM PFI'U HABX OIHK DY

BAJIHWMO JDBLU SAGY GBIJ

PICMKU, GISLU SWLA YI UDX W'J

D URDB JARFDMWR.

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CryptoQuote

AXYDLBAAXR is LONGFELLOW

One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each week the code letters are different.

GZ KROIG LWIFL JUMUWXUM

AUMM LZAUWIGSU FG UXUWPJIP

AFEU, IGJ TULM AUMM, LKIG

FGLZAUWIGSU.

— TFISZOZ AUZNIWJF

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Puzzle Answers

October 5, 2016

Puzzles4Kids Answer

W	O	N	D	E	R	S	P	O	I	O	N	O
A	G	A	T	B	E	E	B	U	T	T	O	N
G	O	N	I	O	N	I	O	N	G	R	I	O
C	R	A	Y	I	O	N	S	E	C	O	N	D
O	N	D	O	N	O	N	H	I	V	I	T	I
U	P	O	N	O	N	S	E	C	O	N	D	I
C	O	N	T	O	N	E	R	I	T	I	O	N
T	O	N	E	R	I	T	I	O	N	E	D	I

Letter Box Solution

L	A	H	G	E	O	K	I	N
G	O	I	L	K	N	E	A	H
E	K	N	A	I	H	G	O	L
O	N	L	I	H	G	A	E	K
H	I	K	E	A	L	O	N	G
A	E	G	N	O	K	L	H	I
K	H	A	O	L	I	N	G	E
N	L	E	H	G	A	I	K	O
I	G	O	K	N	E	H	L	A

BURNING

A	M	B	I	T	I	O	N
T	H	O	E	S			
H	I	U	I	E	S		
E	T	E	R	S	G	D	
S	M	A	R	S			
E	T	O	E	I	T		
U	A		R	H	S	U	B
K	B	F	E	V	O	A	
E		L	I	O			

CryptoQuip answer

As a surgeon who's very good at removing marks left from wounds, folks like to say I'm a scar mechanic.

CryptoQuote answer

No human trait deserves less tolerance in everyday life, and gets less, than intolerance. — Giacomo Leopardi

FEAR & KNOT answer

A	X	I	O	M
P	L	U	M	I
A	P	S	O	X
P	I	X	E	L
R	E	R		
E	M	B	R	Y
S	O	U		
S	P	A	S	M
S				

Even Exchange answers

1. Hermit, Kermit
2. Sheer, Sheen
3. Blast, Beast
4. Badger, Bagger
5. Moose, Mouse
6. Peach, Perch
7. Terry, Tarry
8. Comedy, Comely
9. Hanger, Hunger
10. Trench, French

Weekly SUDOKU

Answer

7	2	8	4	9	6	1	5	3
6	3	9	2	1	5	7	4	8
5	4	1	8	7	3	9	6	2
8	6	7	3	2	9	4	1	5
1	5	2	6	4	7	3	8	9
3	9	4	5	8	1	2	7	6
2	8	3	7	6	4	5	9	1
9	7	5	1	3	8	6	2	4
4	1	6	9	5	2	8	3	7

King Crossword Answers

Solution time: 25 mins.

C	H	O	C	I	D	A	S	P	E	D
H	A	L	O	N	U	N	C	A	P	E
E	L	L	S	T	N	T	A	R	E	A
F	L	A	M	B	E	I	S	R	A	E
O	E	R					P	A	N	
P	E	P	S	P	A	R	A	B	O	L
I	R	A		O	W	E		I	O	N
P	A	R	A	L	L	E	L	W	A	X
Z	O	D	I	A	C	G	O	B	L	E
I	B	I	S	L	E	I	C	T	A	O
P	O	S	E	A	G	O	A	F	R	O
S	E	E	N	D	O	N	M	E	L	T

Bible Trivia Answers

Casey's trivia book "Know It? ... or Not?" is available from BearManorMedia.com

ANSWERS: (1) New; (2) I Am Who I Am; (3) Wicked skins to stone; (4) Isaiah 37: 35; (5) Jarr; (6)

Stickeler's Puzzle

STICKELERS [sic] by Terry Stickels

What are the next two consecutive palindromic numbers, which read the same forward and backward?

6776, 6886, 6996, ?, ?

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Stickeler's Answer on Page 11

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The Garden Bug

Ragweed pollen is perhaps the worst single seasonal allergen in North America. Skin contact may even cause dermatitis. The much more colorful goldenrod plant is often mistaken for ragweed, as they are somewhat similar in appearance, come into flower about the same time (late summer through autumn) and share farm fields, urban landscapes and areas along roadways and rivers. Ragweed heights can range from a few inches to several feet; the "giant" variety grows up to 18 feet.

- Brenda Weaver
Source: pollen.com

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Estill Extension Service AGRICULTURE NEWS

76 Golden Court
Irvine, Kentucky 40336
Call 606-723-4557

Beef Producers Fall Meeting

The Estill County Extension Service and Estill County Cattlemen's Association will have a Cattle Producer fall meeting on Thursday, October 13th, 6:00 p.m. at the Estill County Extension office, 76 Golden Court (off Stacy Lane). Our guest speaker will be Dr. Tim Phillips, UK Plant Breeder/Geneticist, who will give an overview of new novel endophyte fescue varieties. Come join us!

A catered meal will be provided. Farm Credit Services of Mt. Sterling will help sponsor the meal. Please pre-register by October 10th by calling 723-4557.

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