

Name: _____

Date: _____

Endogenous pacemakers and exogenous zeitgebers

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

skin
blindness
meal times
light
entrainment
hypothalamus
pacemaker
retina

campbell and murphy
jetlag
clocks
receptors
exogenous
melanopsin
pineal gland
suprachiasmatic nucleus

sleep/wake cycle
Klein & Wegmann
brightness
endogenous
hormone
melatonin
protein
zeitgeber