

PURPOSE: How DOES
I.M.F. AFFECT
SUBSTANCE PROPERTIES

I. What is ~~the~~ high
temperature?

IT'S ~~AT~~ WHEN MOLECULES
SHAKE AND VIBRATE
FAST

II. What is melting and
vaporizing?

It's when enough vibration
happens that the substance's
IMF can no longer hold
it together.

	when IMF is weak
stickiness	is low
melting	is easy
melting point	is low temperature
boiling point	is low temperature
Vapor pressure	is high

"Viscosity" is the
resistance to flowing.

E.G. HONEY IS SLOW FLOWING
SO IT HAS A HIGH VISCOSITY.

WATER FLOWS FASTER SO
IT HAS A LOW VISCOSITY.

WENDYS 'FROSTY' DESSERT HAS
SUCH A HIGH VISCOSITY
THAT IT WON'T GO
THROUGH A STRAW.

all three types of IMF

http://genest.weebly.com
 y day at lunch and Tues, Wed., & Thurs after school!
 ? Email me at home: egenest@madison.k12.wi.us



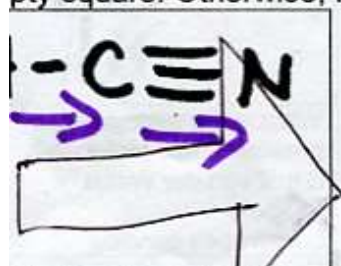
Name _____
 Period _____

ch, the type of intermolecular force with the correct definition:

- y van der Waals force x. the strongest type of intermolecular force
z Dipole Interactions y. the weakest intermolecular force
x Hydrogen Bonding z. the medium strength intermolecular force

w small arrows next to each bond to show the polarity of the bond. Draw a large hollow arrow to show the polarity of the molecule.

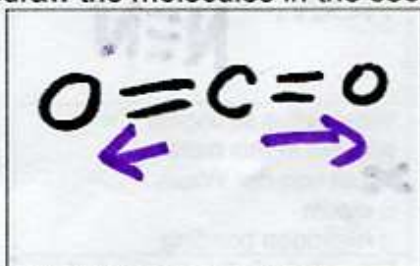
ne molecules in the first square are correctly oriented, write CORRECT in the empty square. Otherwise, redraw the molecules in the second square.



What is the strongest IMF present in *this* molecule?
 just van der Waals
 dipole
 hydrogen bonding

How can you tell?
 → →
 arrows don't cancel

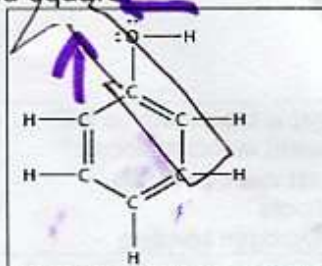
How sticky is this molecule?
 barely sticky
 normal stickiness
 very sticky



What is the strongest IMF present in *this* molecule?
 just van der Waals
 dipole
 hydrogen bonding

How can you tell?
 ← →
 the arrows cancel out

How sticky is this molecule?
 barely sticky
 normal stickiness
 very sticky

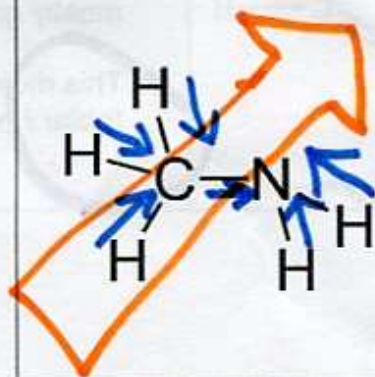


What is the strongest IMF present in *this* molecule?
 just van der Waals
 dipole
 hydrogen bonding

How can you tell?
 H is touching

How sticky is this molecule?
 barely sticky
 normal stickiness
 very sticky

Write the electronegativity number next to each atom.
 Carbon has 6
 Nitrogen has 6
 Hydrogen has 1
 How many covalent bonds are there?
10 are covalent bonds
0 are ionic covalent

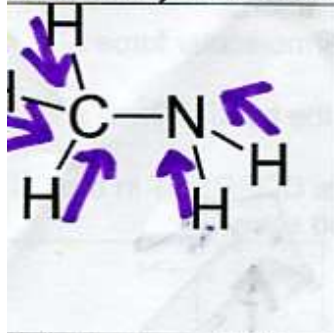


- d. Write arrows next to each bond to show which end of the bond the electrons go more towards
- e. Draw a hollow arrow which shows which end the negative electrons are mostly going towards.
- f. This molecule is (polar / nonpolar)

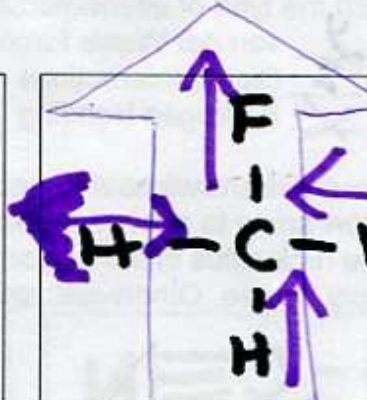
Match the type of intermolecular force with the correct definition:

- | | |
|------------------------------|--|
| <u>A</u> van der Waals force | a. occurs in all molecules, even between nonpolar molecules |
| <u>C</u> Dipole Interactions | b. cannot occur unless a molecule contains fluorine, nitrogen, or oxygen |
| <u>B</u> Hydrogen Bonding | c. occurs in all molecules that have regions of (+) AND (-) charge |

Do similarly to #2 on the front of the sheet:



Nitrogen, the kind you're breathing now. 3.0 3.0
NEN



What is the strongest IMF present in *this* molecule?
 just van der Waals
 dipole
 hydrogen bonding

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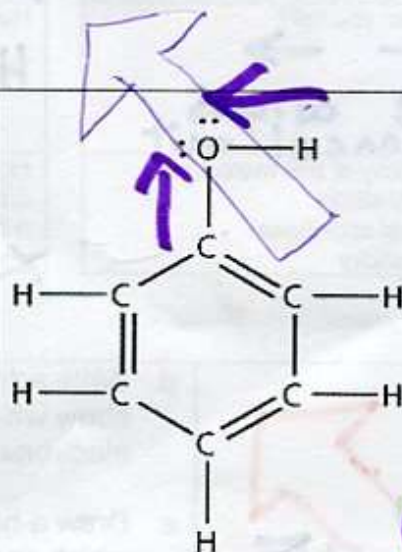
What is the strongest IMF present in *this* molecule?
 just van der Waals
 dipole
 hydrogen bonding

How sticky is this molecule?
 barely sticky
 normal stickiness
 very sticky

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 normal stickiness
 very sticky

How sticky is this molecule?
 barely sticky
 normal stickiness
 very sticky

Write the electronegativity number next to each atom.
 This atom has 16 covalent bonds
 of these, 7 are polar covalent bonds
 and 9 are nonpolar covalent bonds



j. Write arrows next to each bond to show which end of the bond the electrons go more towards

k. Draw a hollow arrow which shows which end the negative electrons are mostly going towards.

l. This molecule is (polar / nonpolar)

Al
 og that lived for
 ssroom, unsur-
 by high school
 , the collection
 teaching career
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 ed by any Madi-
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 many kids ...
 me kind of per-
 long," said Lucy
 he dissected a
 du Vair's sixth-
 ra Killian was
 le's a legend."
 average teacher
 after 21 years,
 adison Teachers



Photos by M.J.

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Madison East High School biology teacher Paul du Vair shows his students a small, partially digested stomach of a shark during a dissection in his classroom at East High.

d, interested him
 in me ever since
 y. It was always
 "In high school,
 b at home in the
 times I scared the
 mother."
 eer is as storied
 students imagine
 believe he's been
 than their par-
 tive. Its beginning
 e assassination of
 f, Kennedy when
 dsburg.



Signs, posters and news clippings hang on a bulletin board in the classroom of Madison East High School biology teacher Paul du Vair.

her sisters enrolled in du Vair's
 classes in the late 1980s and early
 1990s. Each pursued careers in
 science. One sister is a cancer
 researcher at the University of
 Chicago; the other is an engineer
 for Boeing.
 Kilfoy-Flores said that's only
 because of du Vair.
 "I think part of what makes him
 so amazing and so different from
 most teachers is the really high
 standards that he sets," she said.
 "He has really high expectations,
 but he also is extremely clear
 about those expectations. He

along the way. But I hope when
 they grow up, they will realize the
 reason I was pushing was for their
 benefit."
 Kilfoy-Flores' daughter also
 recently took du Vair's class —
 and is one of three generations of
 students that du Vair has taught
 since the early 1960s. The change
 in students during that time is like
 "night and day," he said.
 Students now are freer with
 expressing their emotions, and
 have no problem telling teachers
 what they think. That change has
 made interaction more "satisfy-

“I hope
 grow u
 will realize
 I was pushi
 their benefi

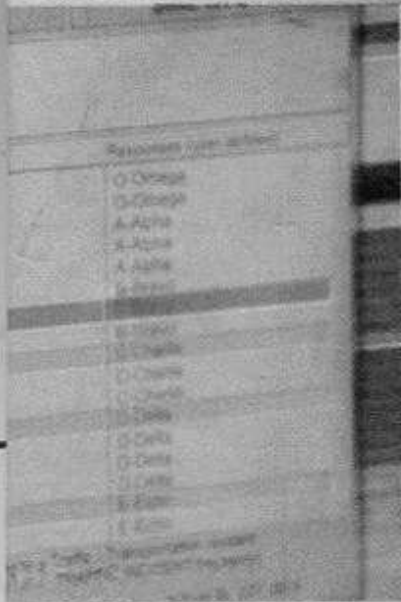
Madison East Hig

1964, teaching
 High School, h
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and created the



process of how a 911 call is taken at the Center in the City-County Building.

How the public can help

The Dane County 911 center gets more than 300,000 emergency calls a year. Here are a few ways for the public to make the system more efficient.

- If the center doesn't answer immediately, or you get a recording, don't hang up unless it's unsafe not to. Call takers must follow up on disconnected calls, meaning extra work and time spent. If you get a busy signal, hang up, pause, and if it's safe, try again.
- When making a 911 call, especially from a cellphone, attempt to know the location of the emergency. If on a street or road, pay attention to street signs and highway mile markers. Call takers, in this order, will try to confirm address, phone number, name and nature of the emergency. The quicker they get this information the sooner they can send help.

teacher to retire

Madison East's Paul du Vair is ready to step down after more than 50 years in the classroom

MOLLY BECK
mbeck@madison.com, 608-252-6135

Classroom 3027 in the northeast corner of Madison East High School's third floor looks — and smells — like a biology textbook come to life.

Schools of mounted fish and five tanks worth of swimming ones watch the classroom from their perches. Small turtles to giant tortoise shells hang on one wall. A reindeer hoof hangs on another.

Underneath the wall decorations, filling shelves and bookcases, are about 400 small jars with yellowing labels tapped out on a typewriter: "cat uterus," "elegant spider," "human ovaries" and "golden hamster." There are human brains, a kidney and a cancerous uterus preserved in formaldehyde.

Also among them is the preserved, "Lord Ribbit Baron of Barphe" — the

Please see **TEACHER**, Page A10



M.P. KING — State Journal

Madison East High School biology teacher Paul du Vair quizzes freshmen Jada White, left, and Ali Saffold on the anatomy of a shark's digestive system during a dissection in his classroom last month.

C1	OBITUARIES	B2	SPORTS	D1
H2	OPINION	E1	TAKE FIVE	T3
WORLD	A4 OUTDOORS	D12	TELEVISION	H4



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Monday, June 1
9:30am - 4:30pm
www.NARIMadison.org

