

The

?

Mother

?

Of All

Conundrum

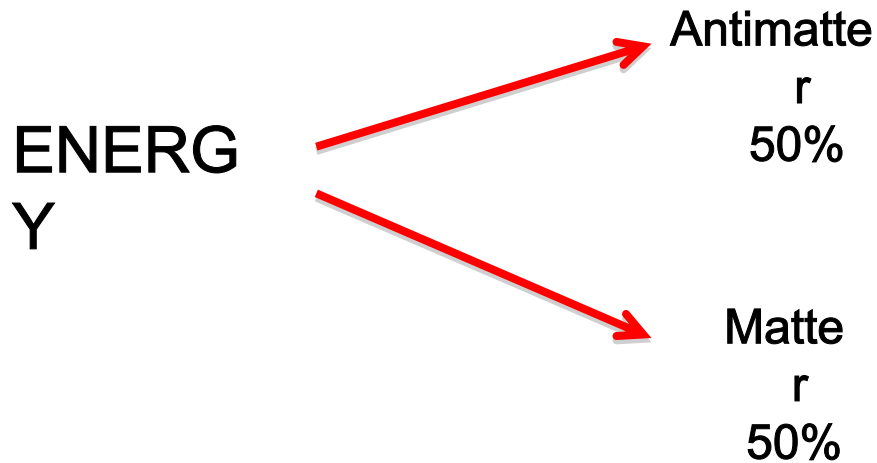
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S
?

?

*We believe that the energy of the Big Bang
must have produced equal amounts
of matter and antimatter:*

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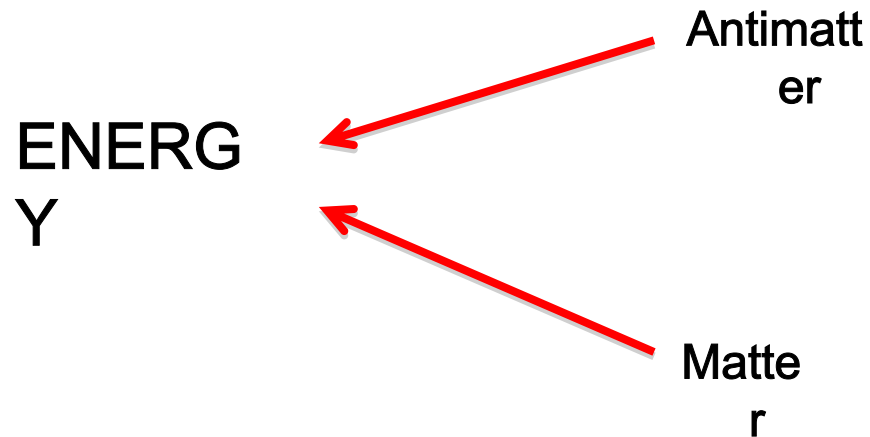


ALSO RECALL[^]

*that when antimatter and matter meet
they mutually annihilate, producing energy:*

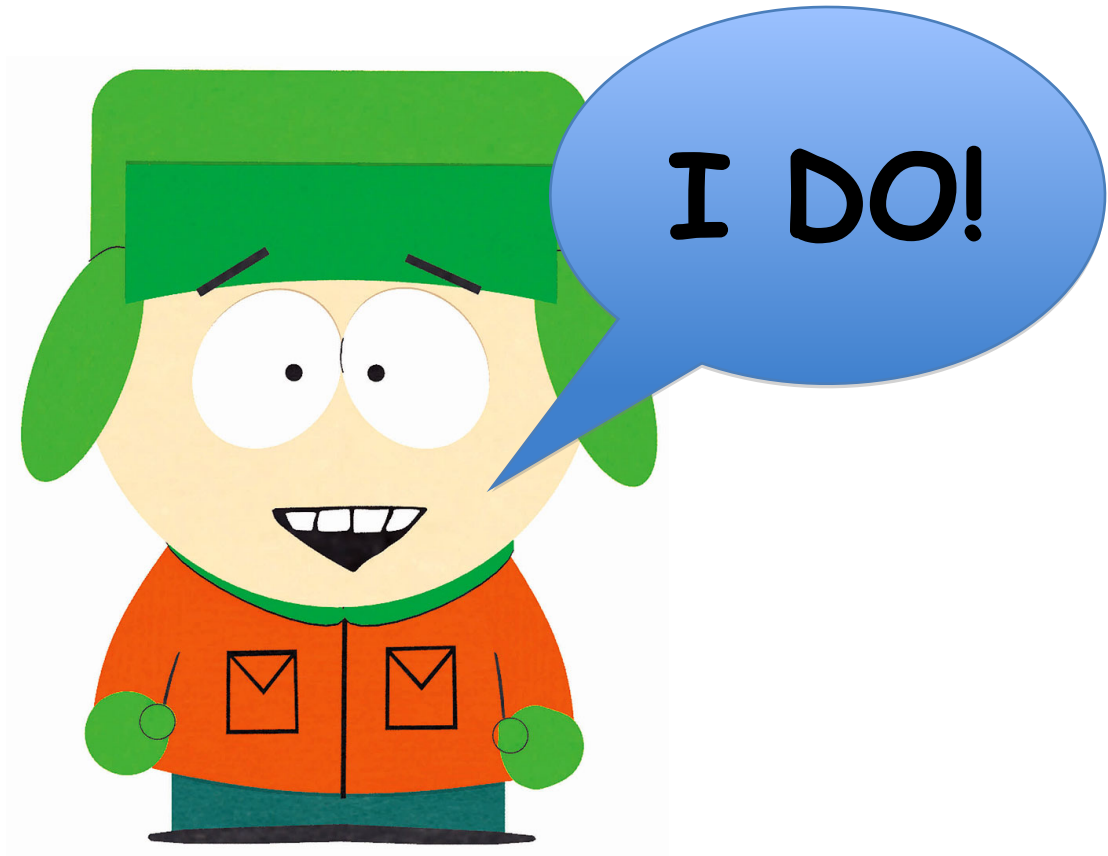
ALSO RECALL

*that when antimatter and matter meet
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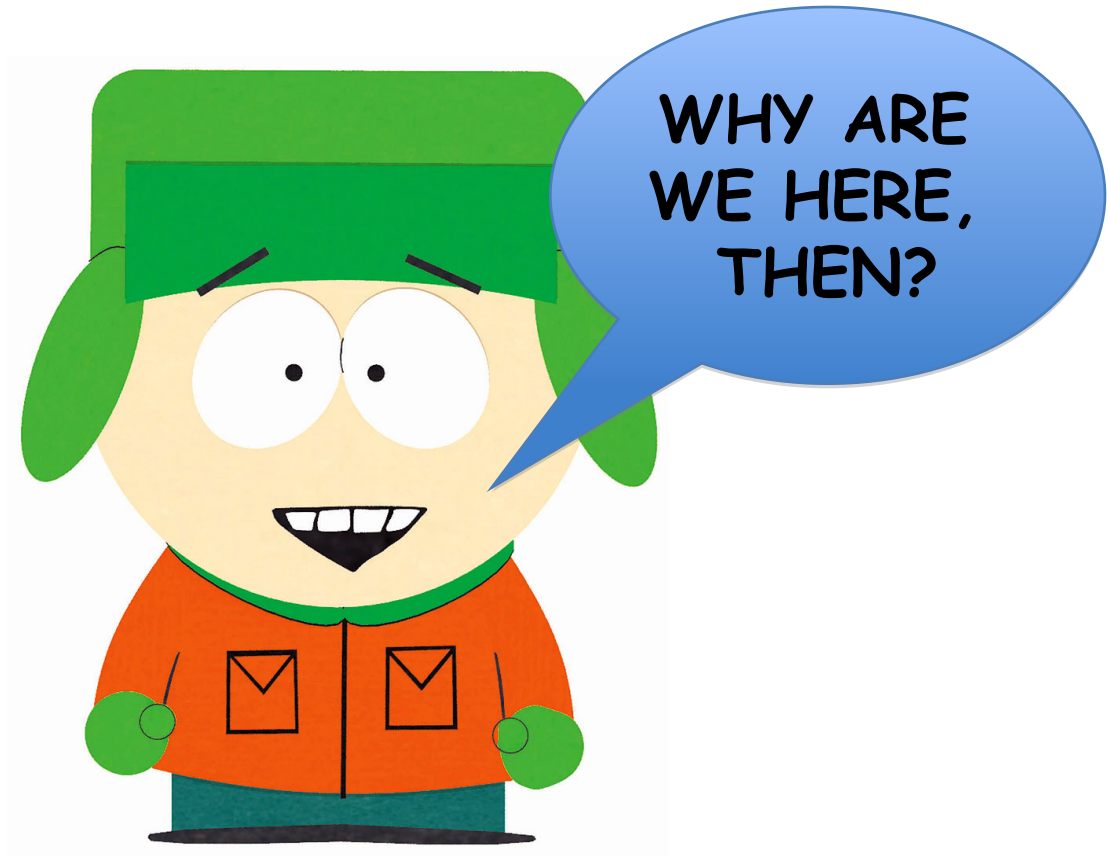


ANYONE SEE A PROBLEM HERE?

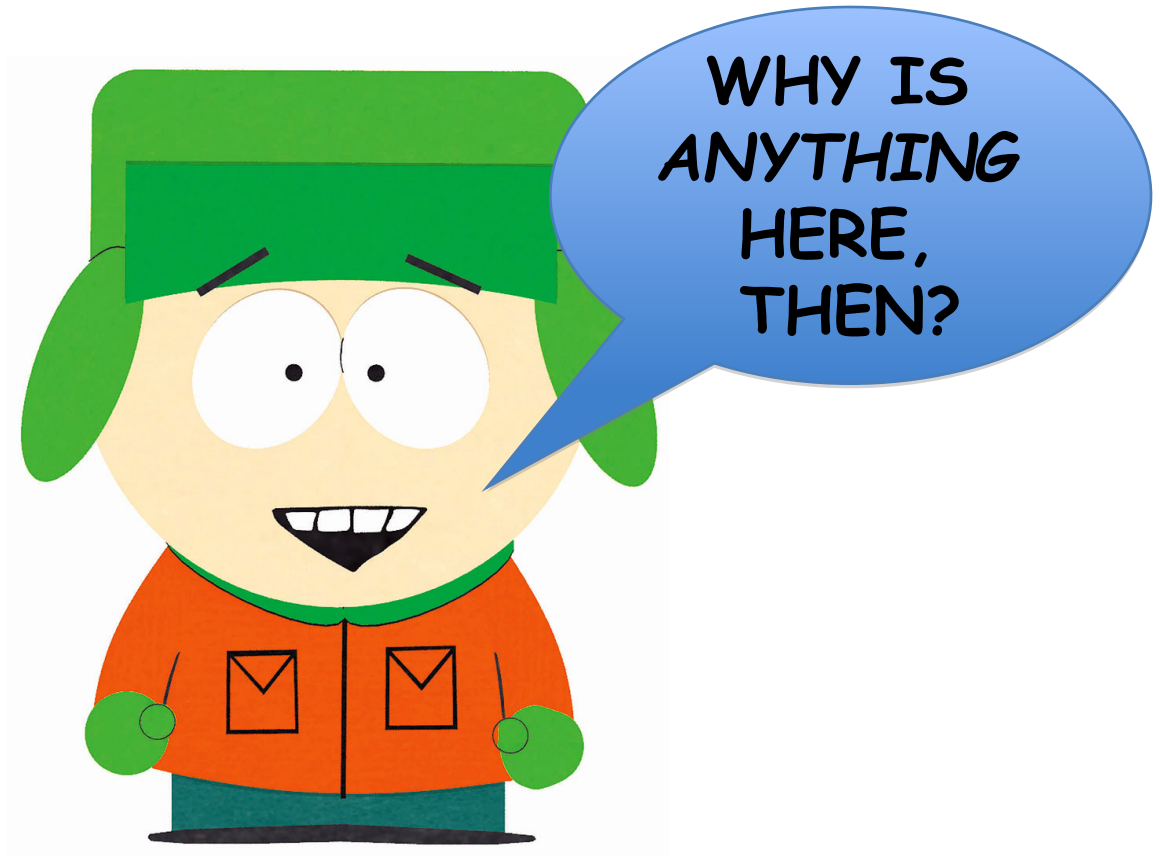
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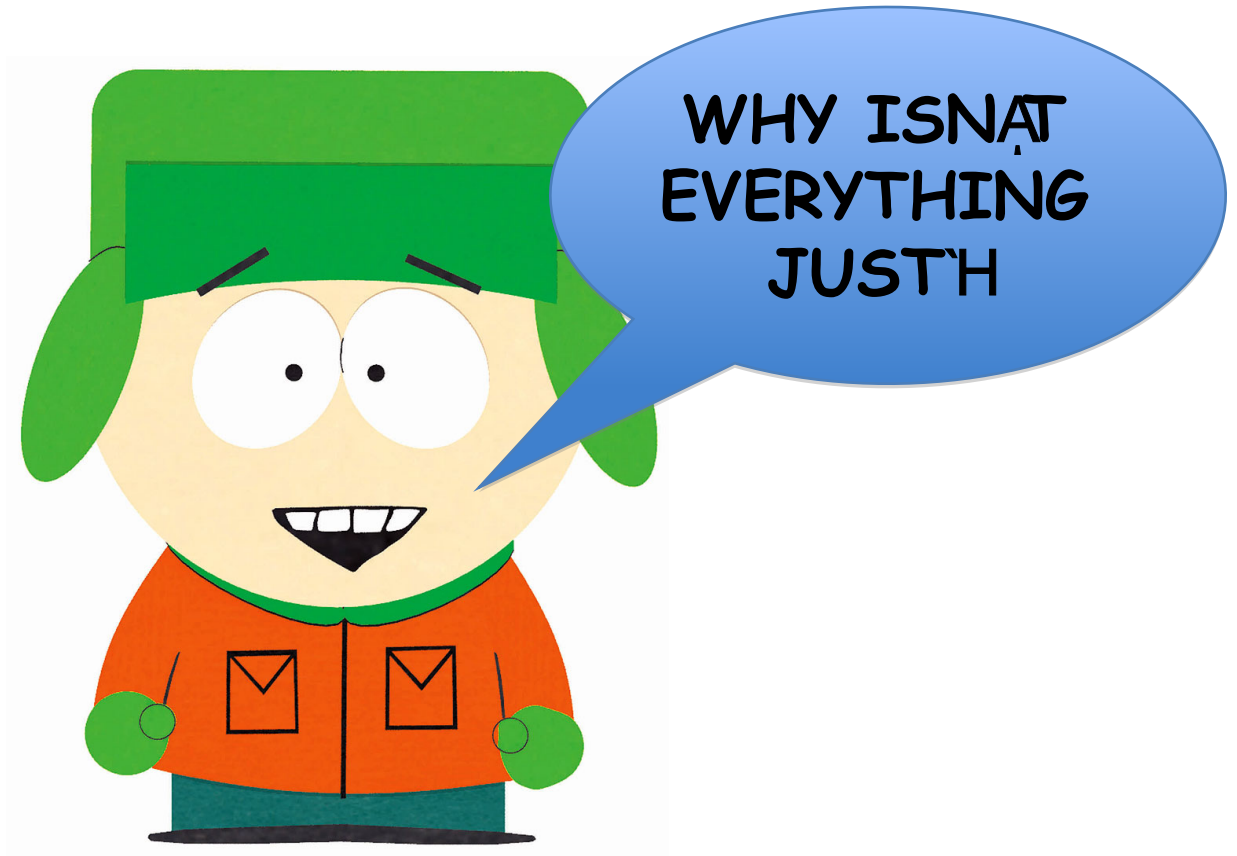
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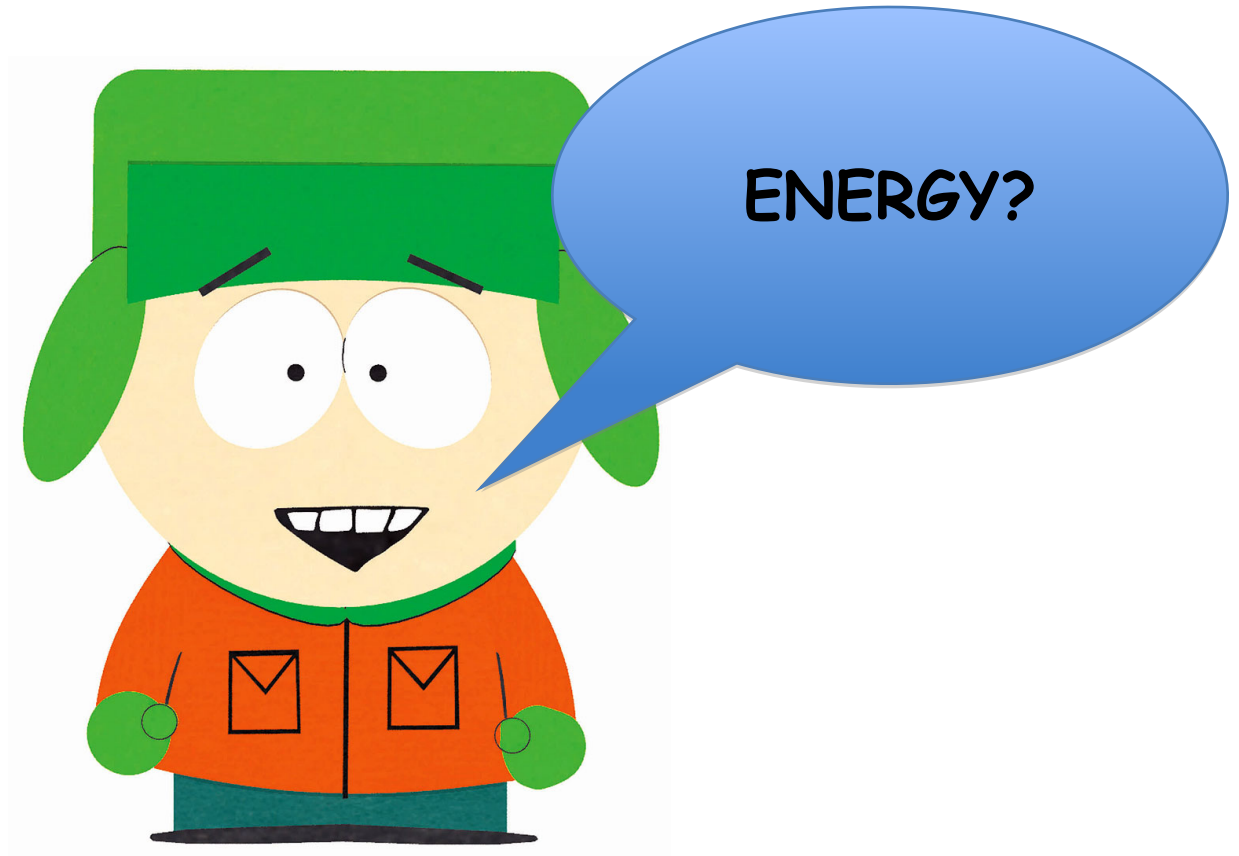
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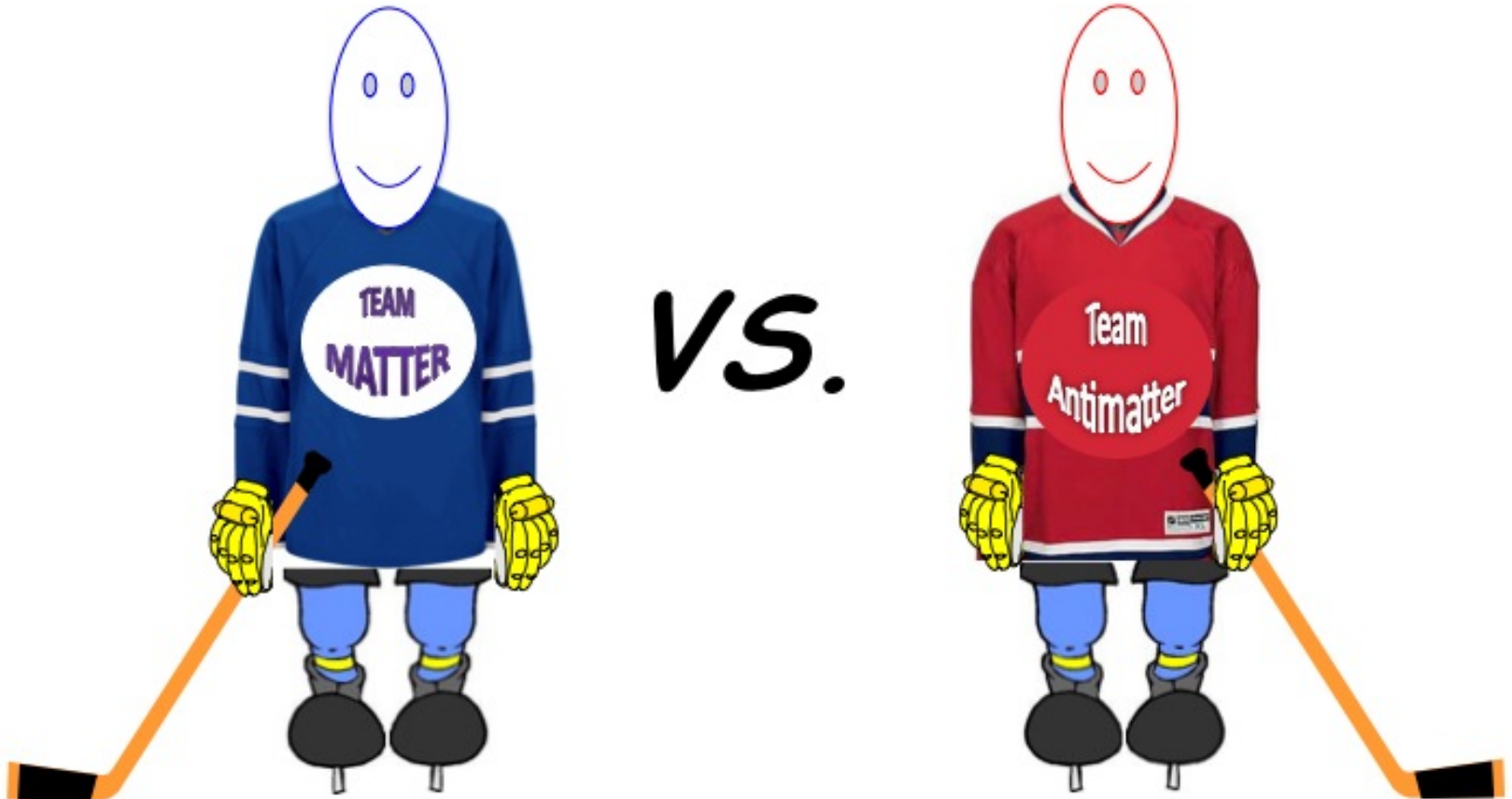


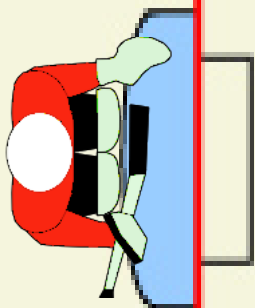
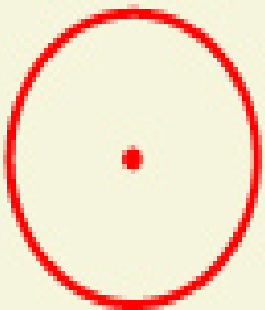
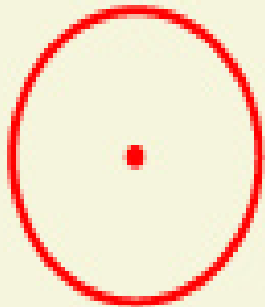
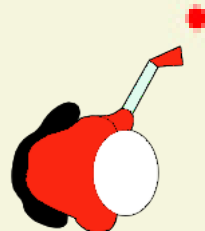
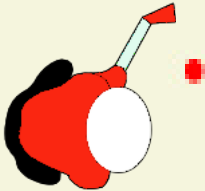
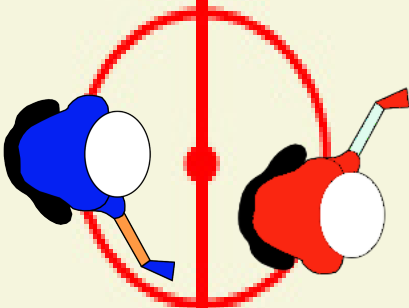
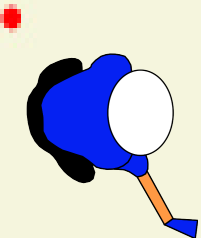
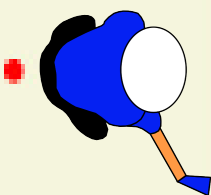
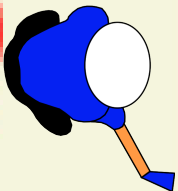
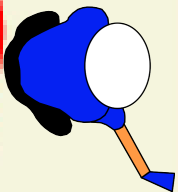
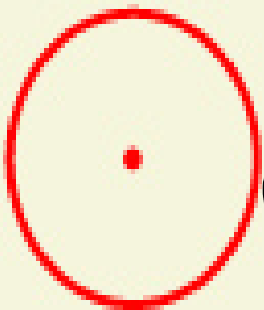
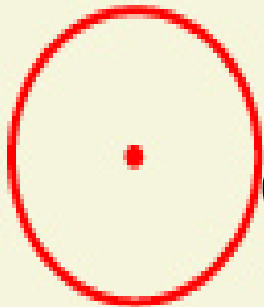
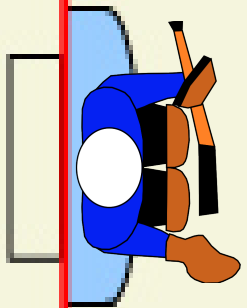
A VERY GOOD QUESTION.

WE BELIEVE THAT
A VERY SHORT TIME ($\approx 10^{-10}$ seconds)
AFTER THE BIG BANG OCCURRED,
THERE WAS SLIGHTLY MORE
MATTER THAN ANTIMATTER.

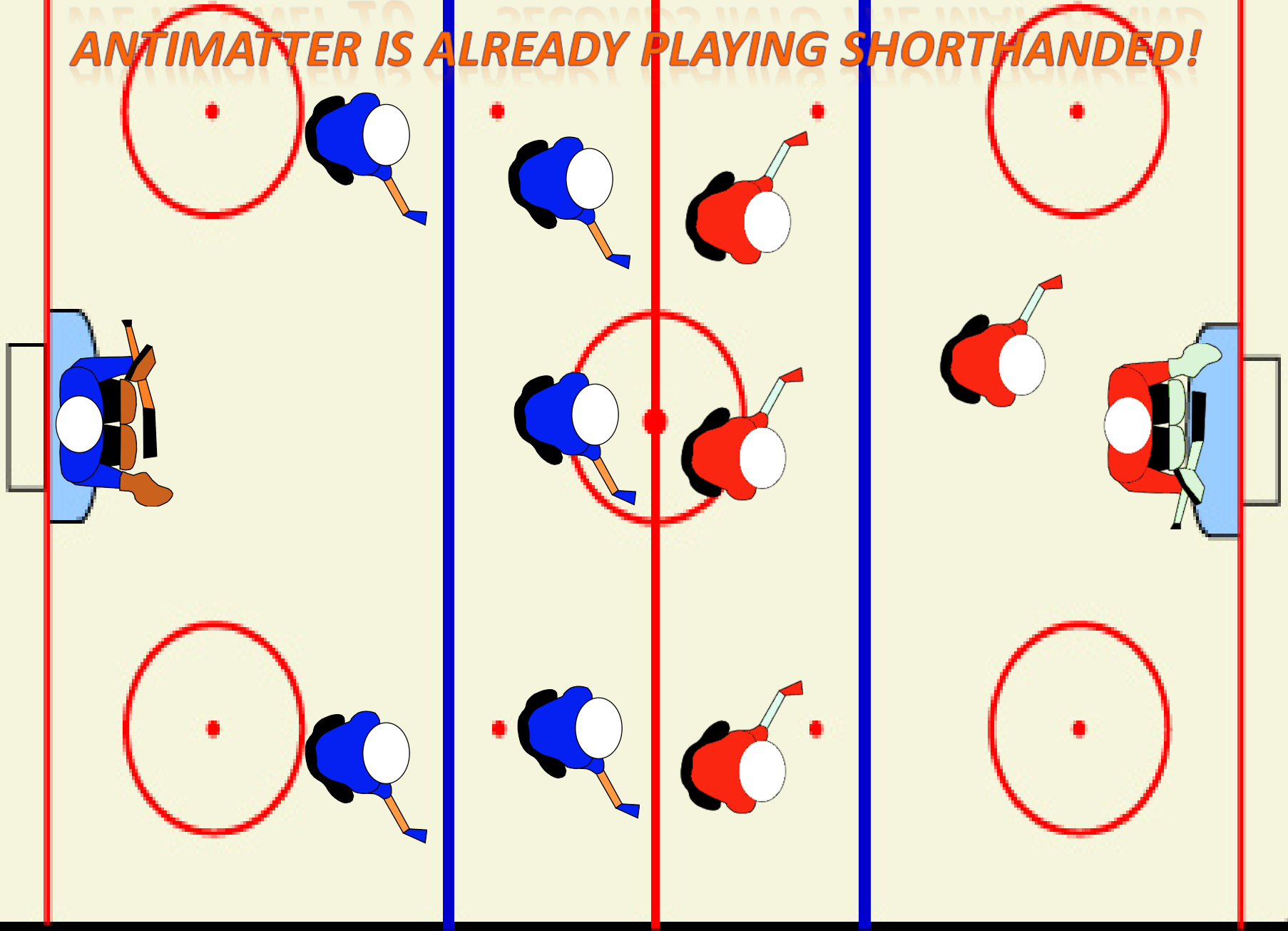
THE GREAT UNIVERSAL GRUDGE MATCH

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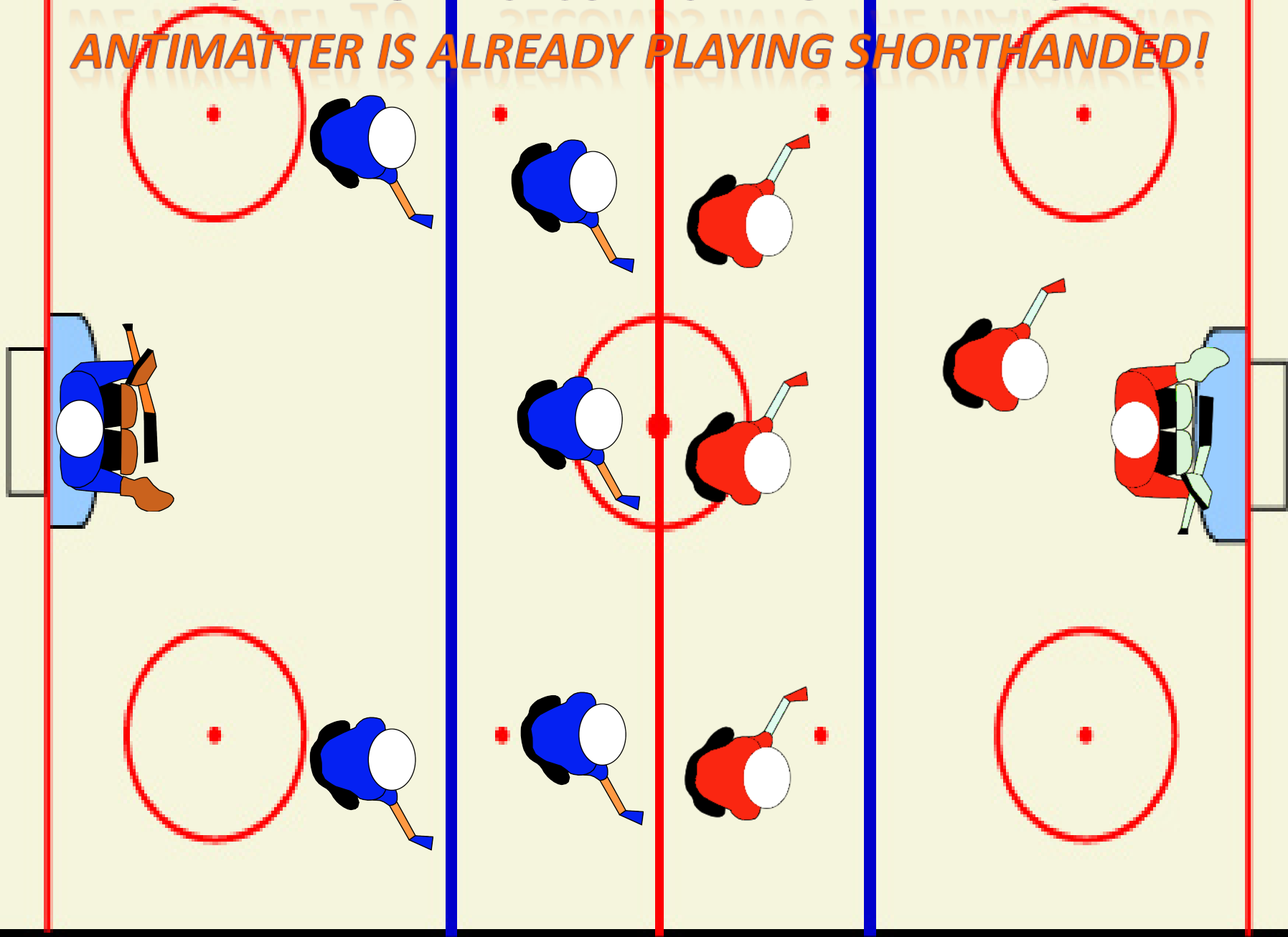




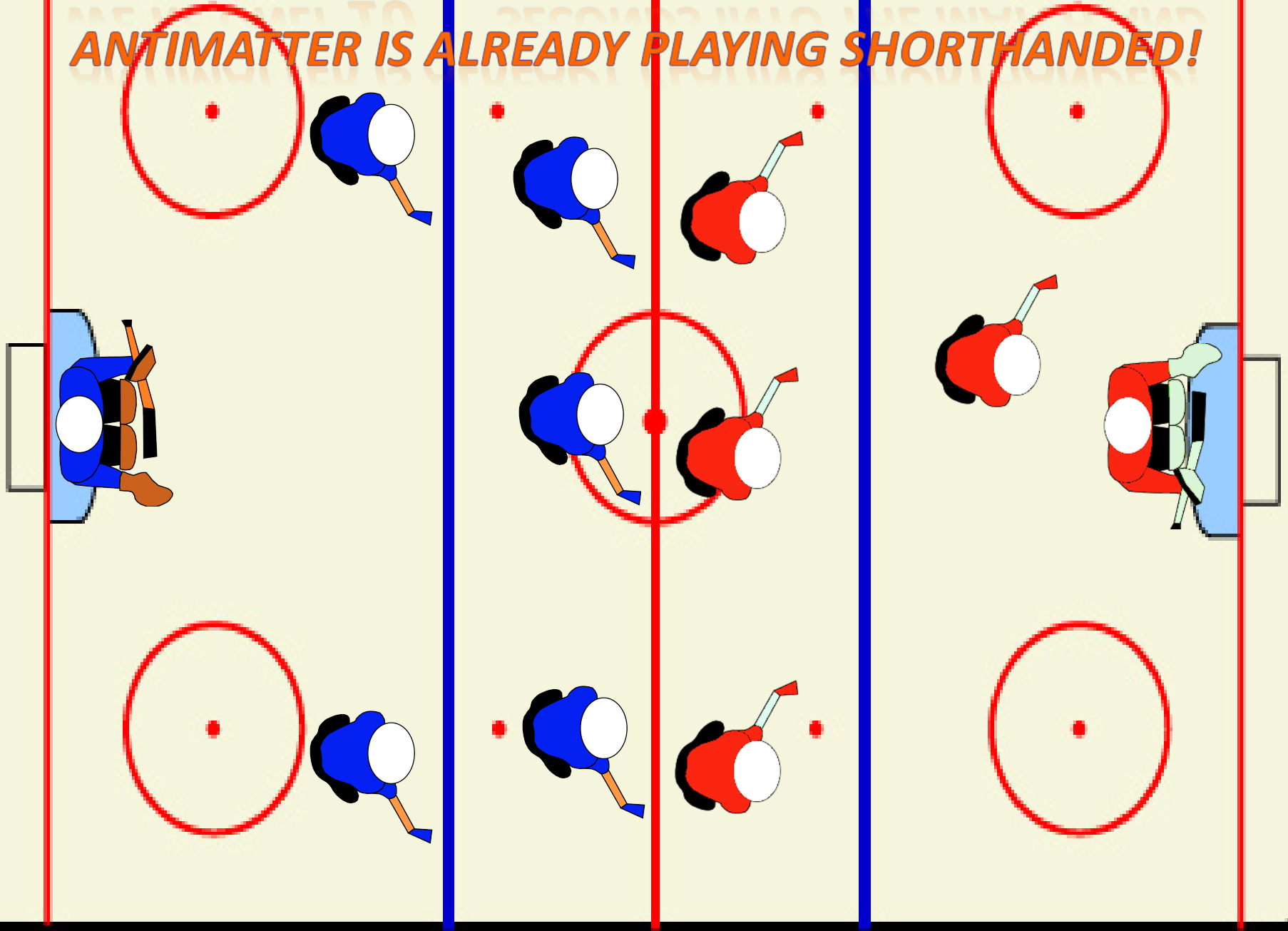
**WE'RE ONLY 10^{-10} SECONDS INTO THE MATCH AND
ANTIMATTER IS ALREADY PLAYING SHORTHANDED!**



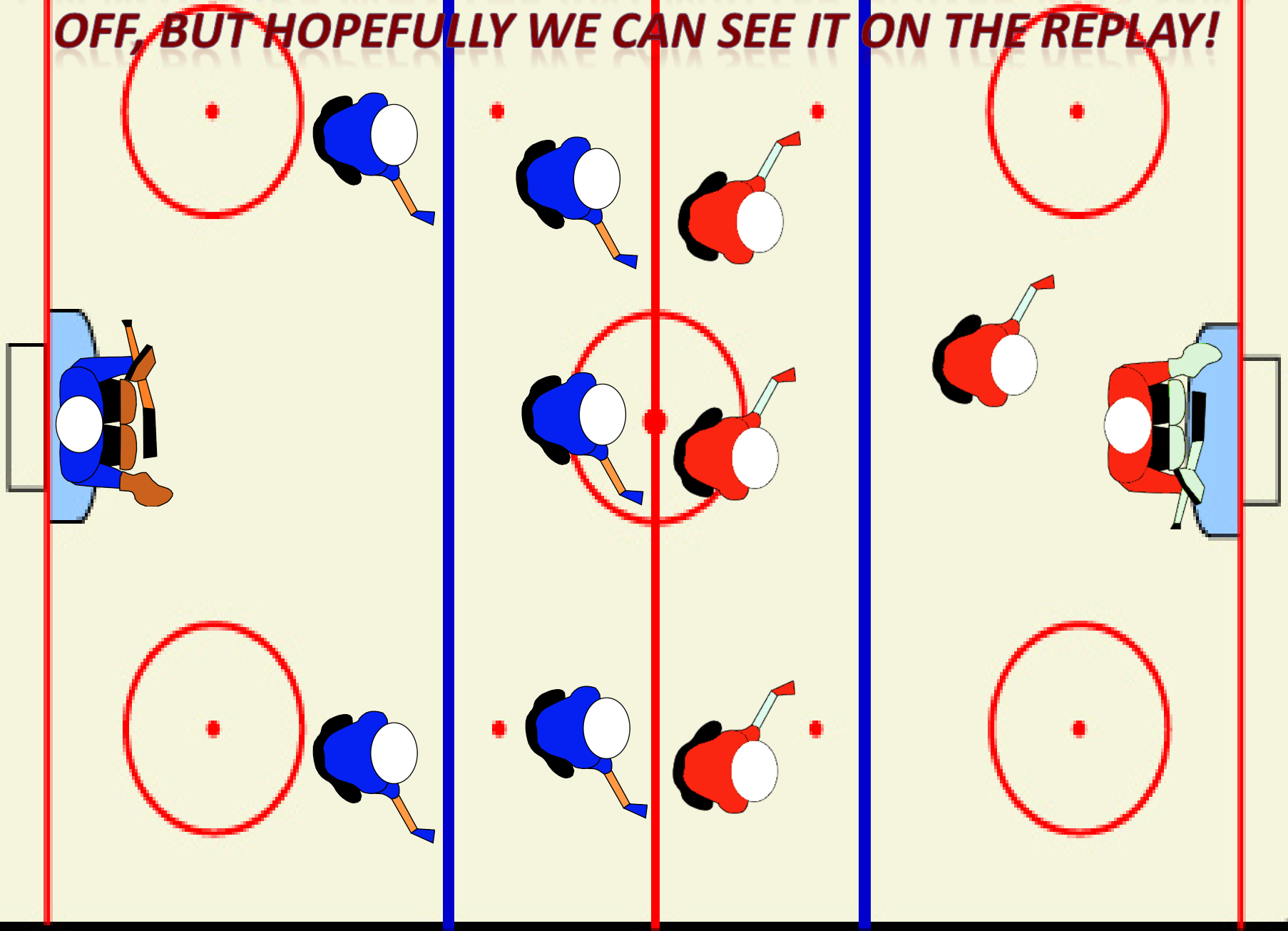
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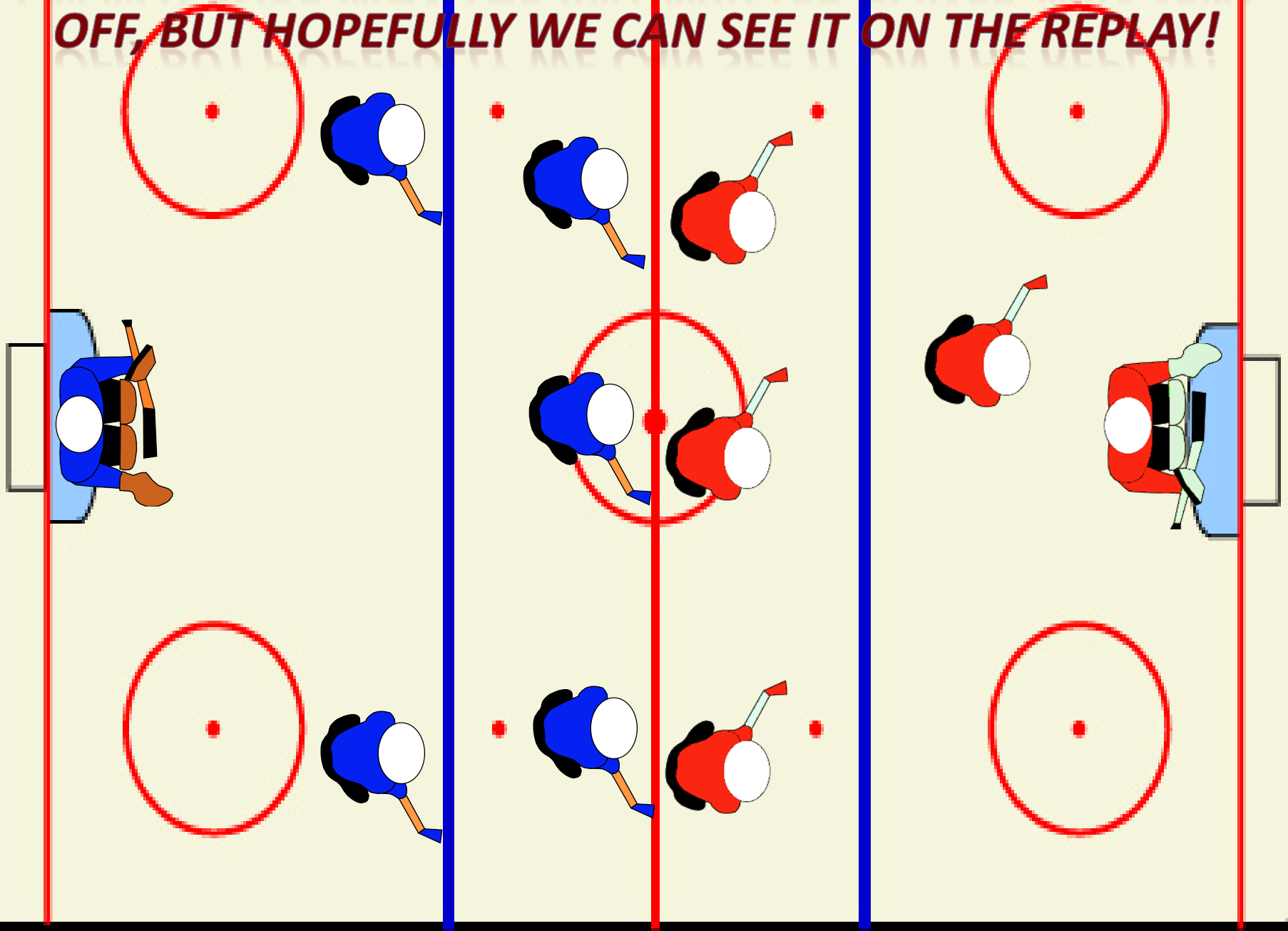
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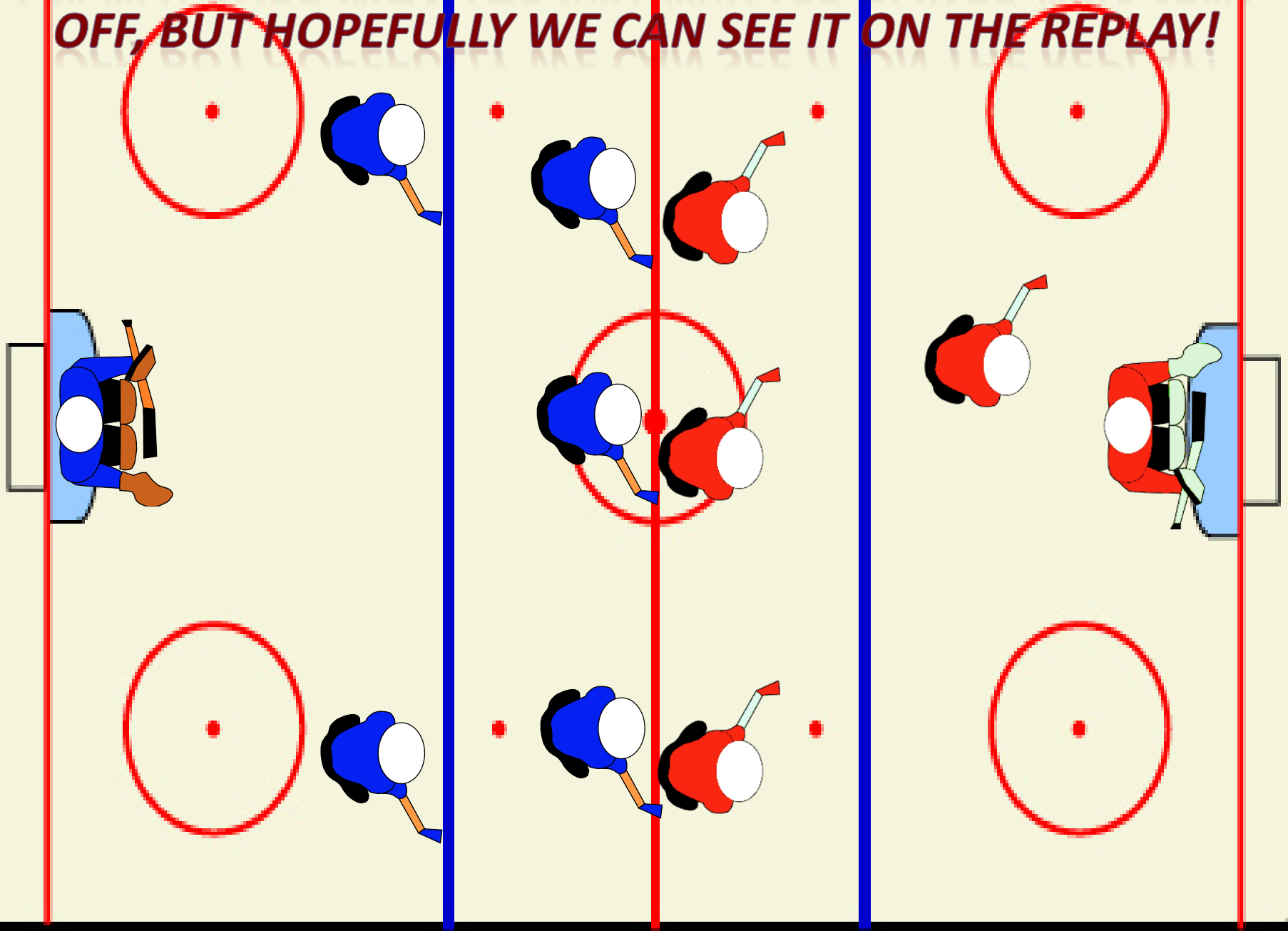
I'M NOT SURE WHY THE ANTIMATTER PLAYER WAS SENT OFF, BUT HOPEFULLY WE CAN SEE IT ON THE REPLAY!



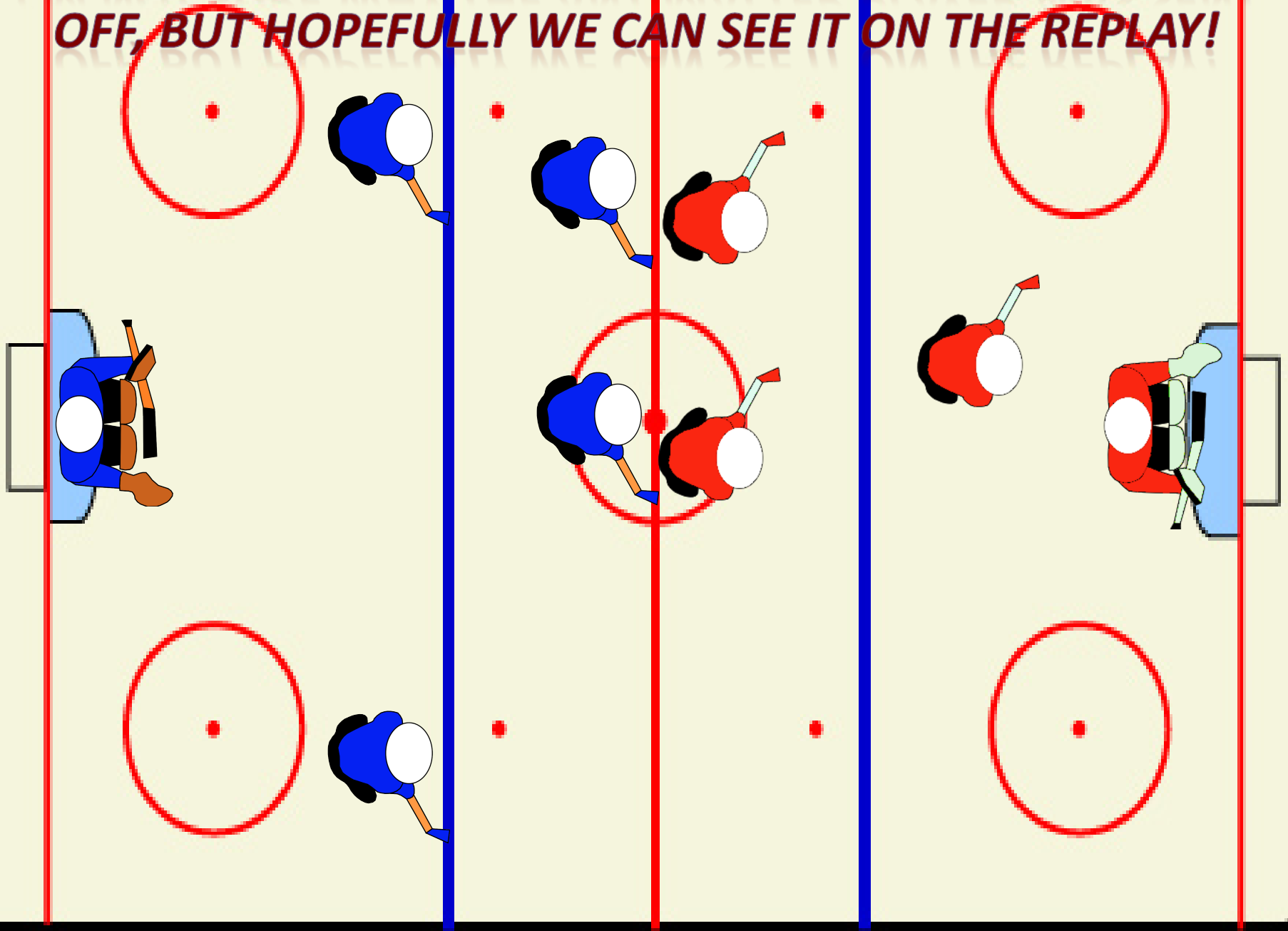
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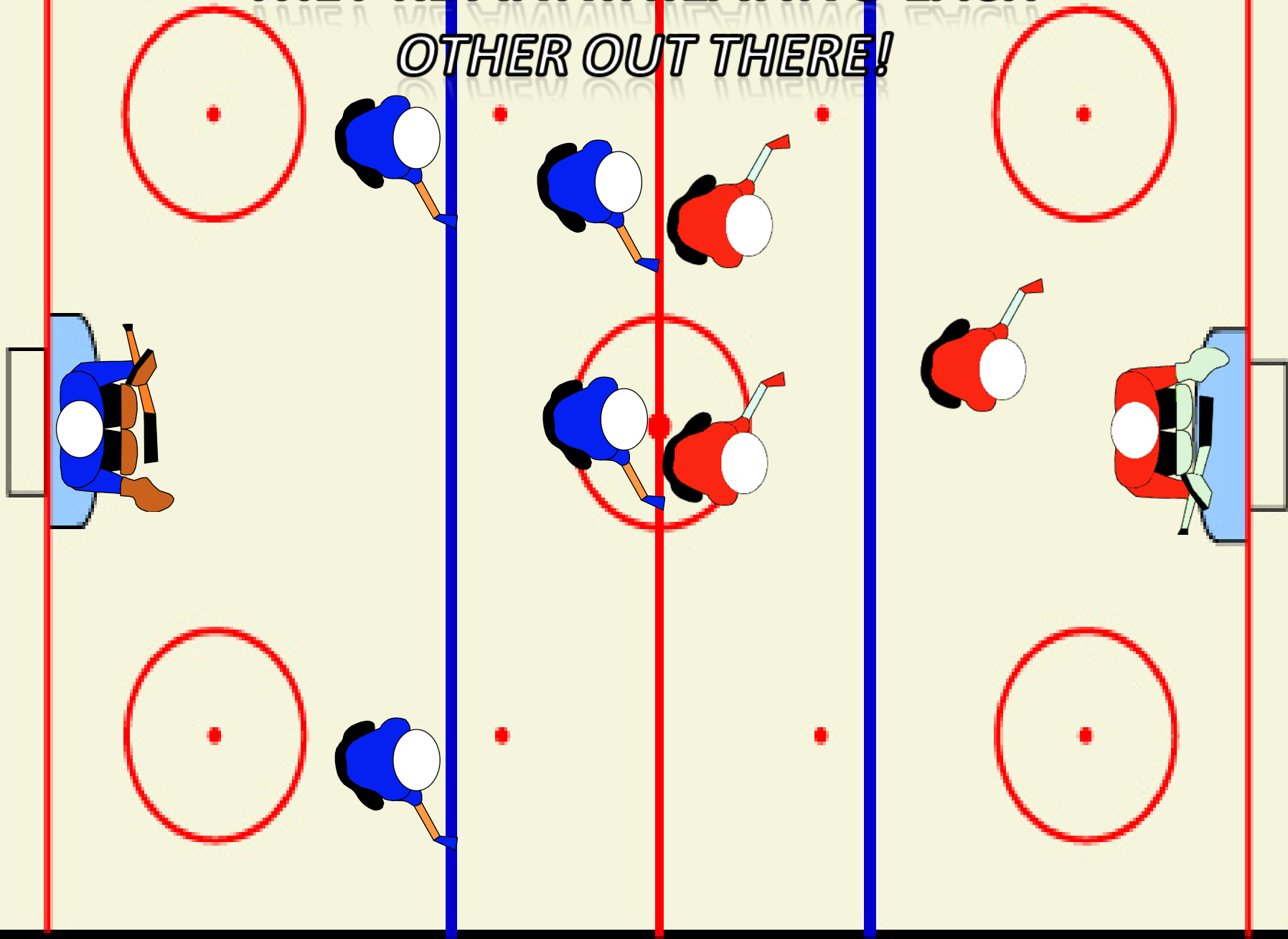
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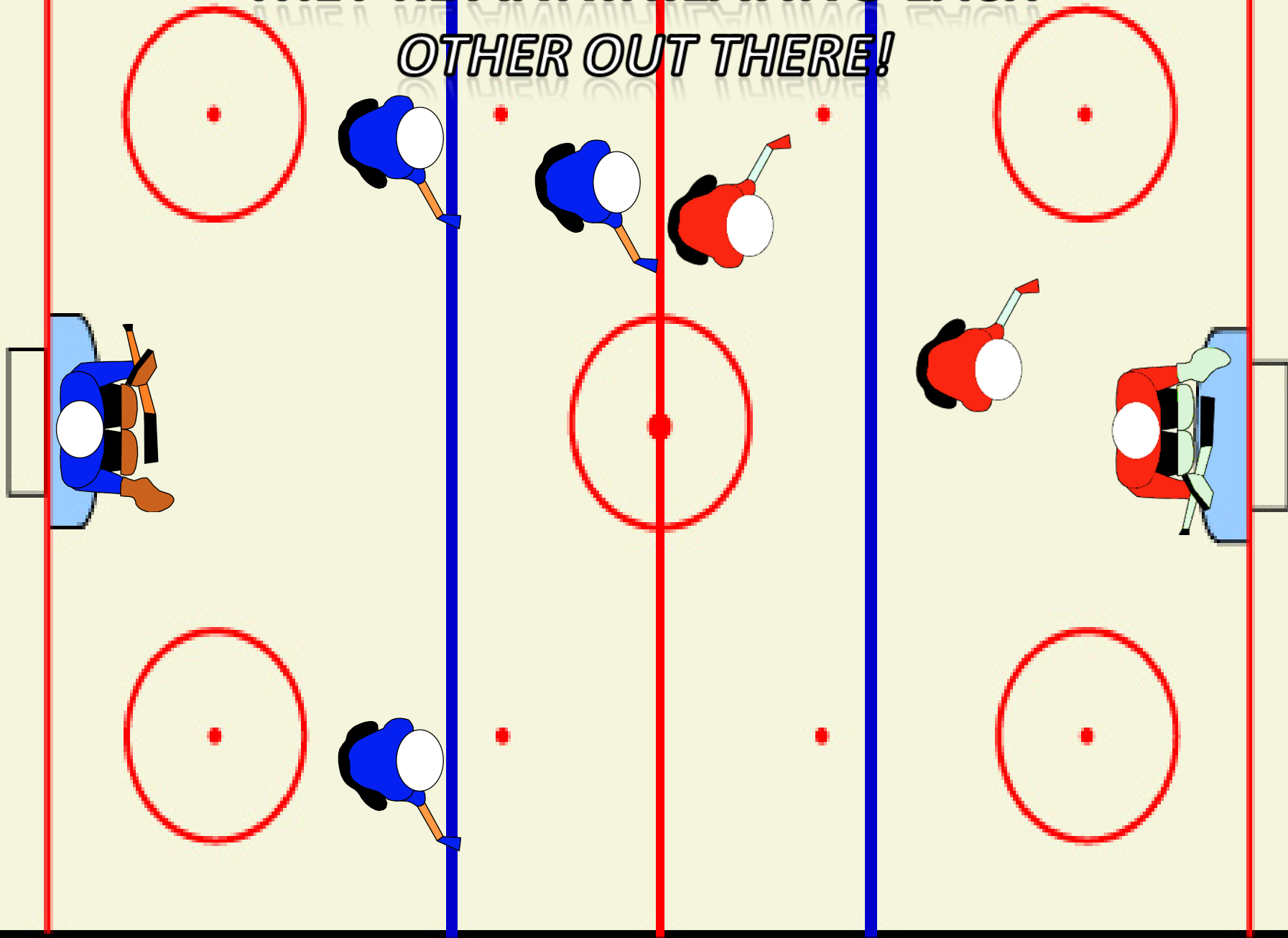
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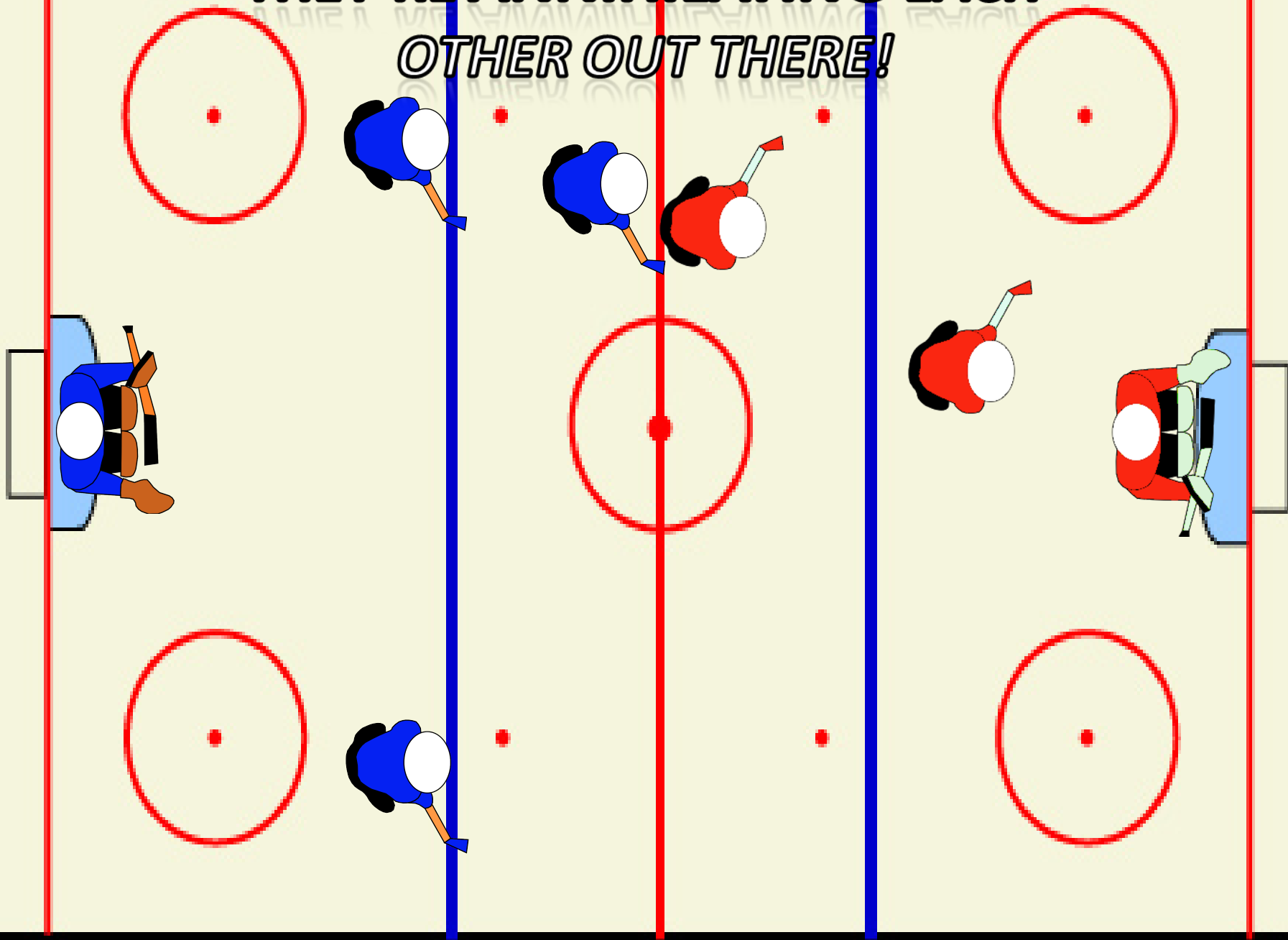
**THEY'RE ANNIHILATING EACH
OTHER OUT THERE!**



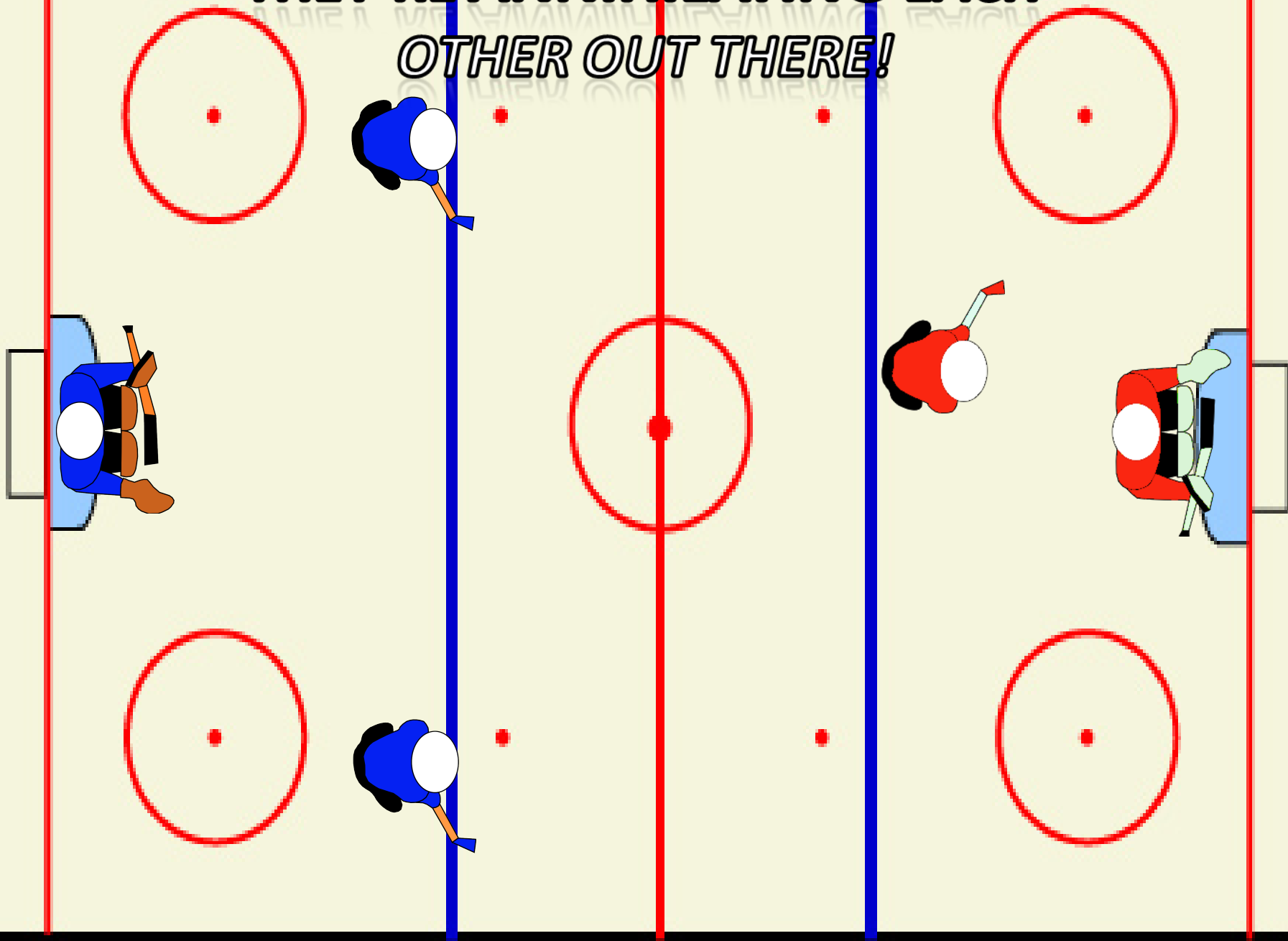
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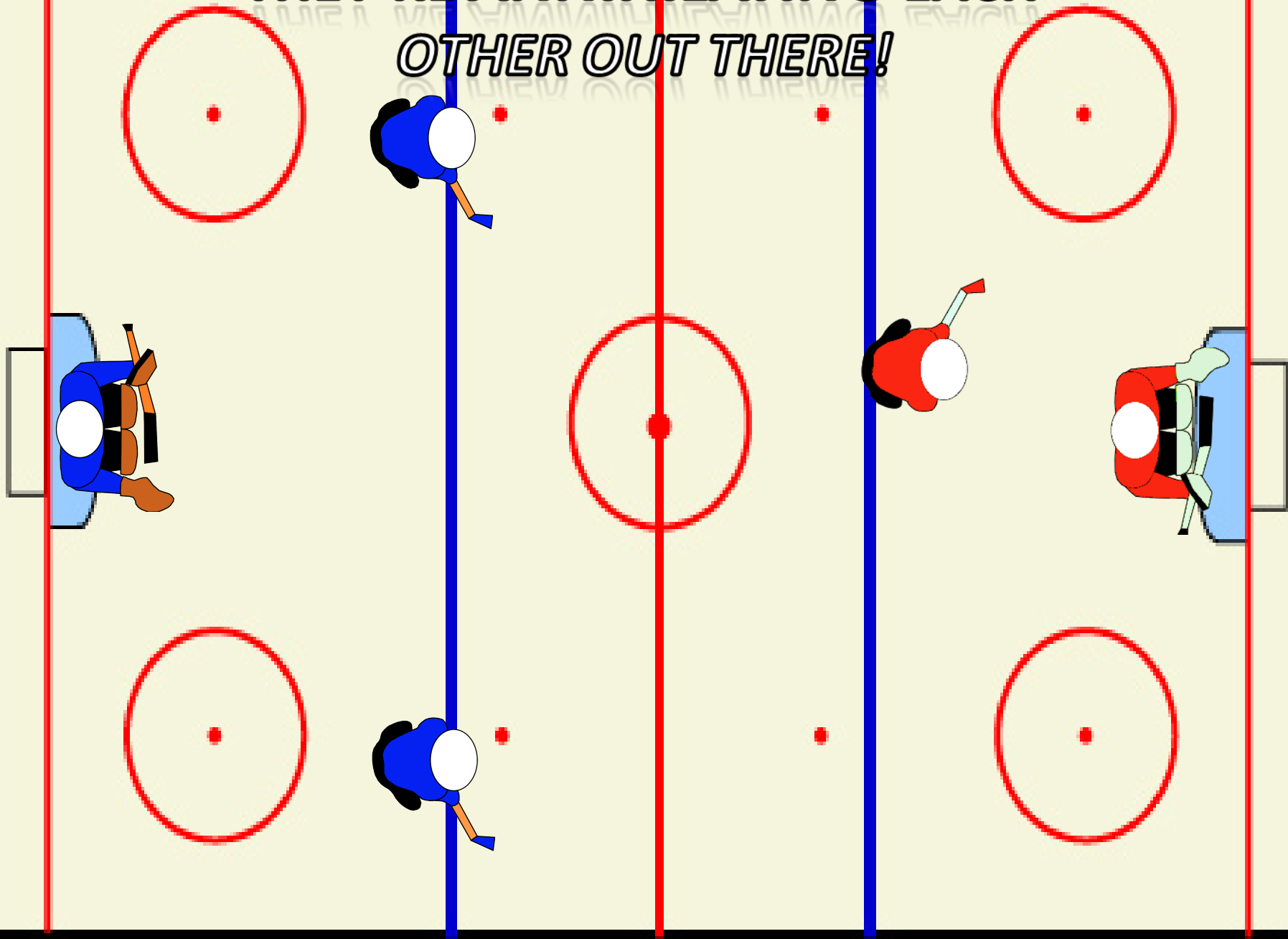
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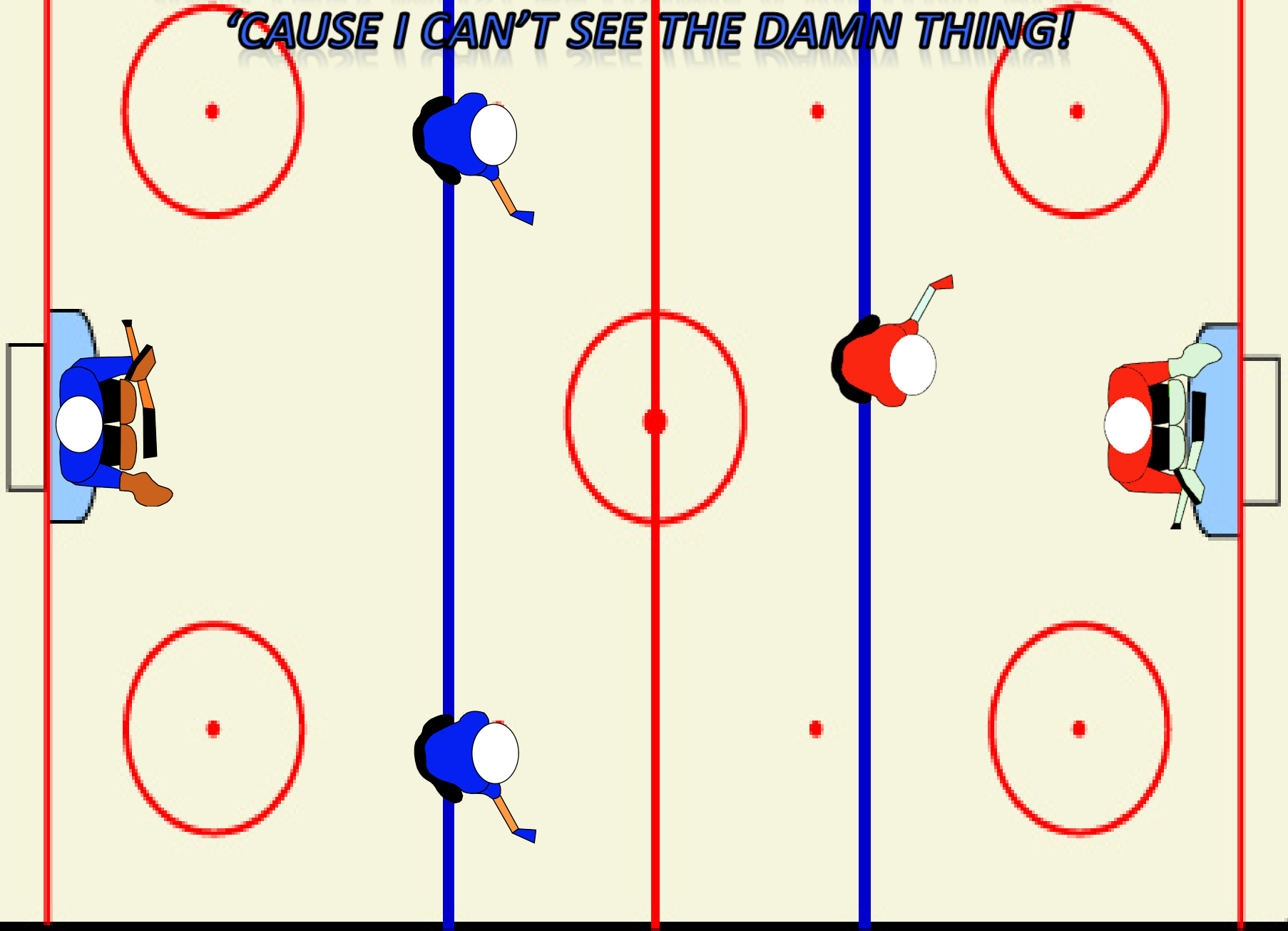
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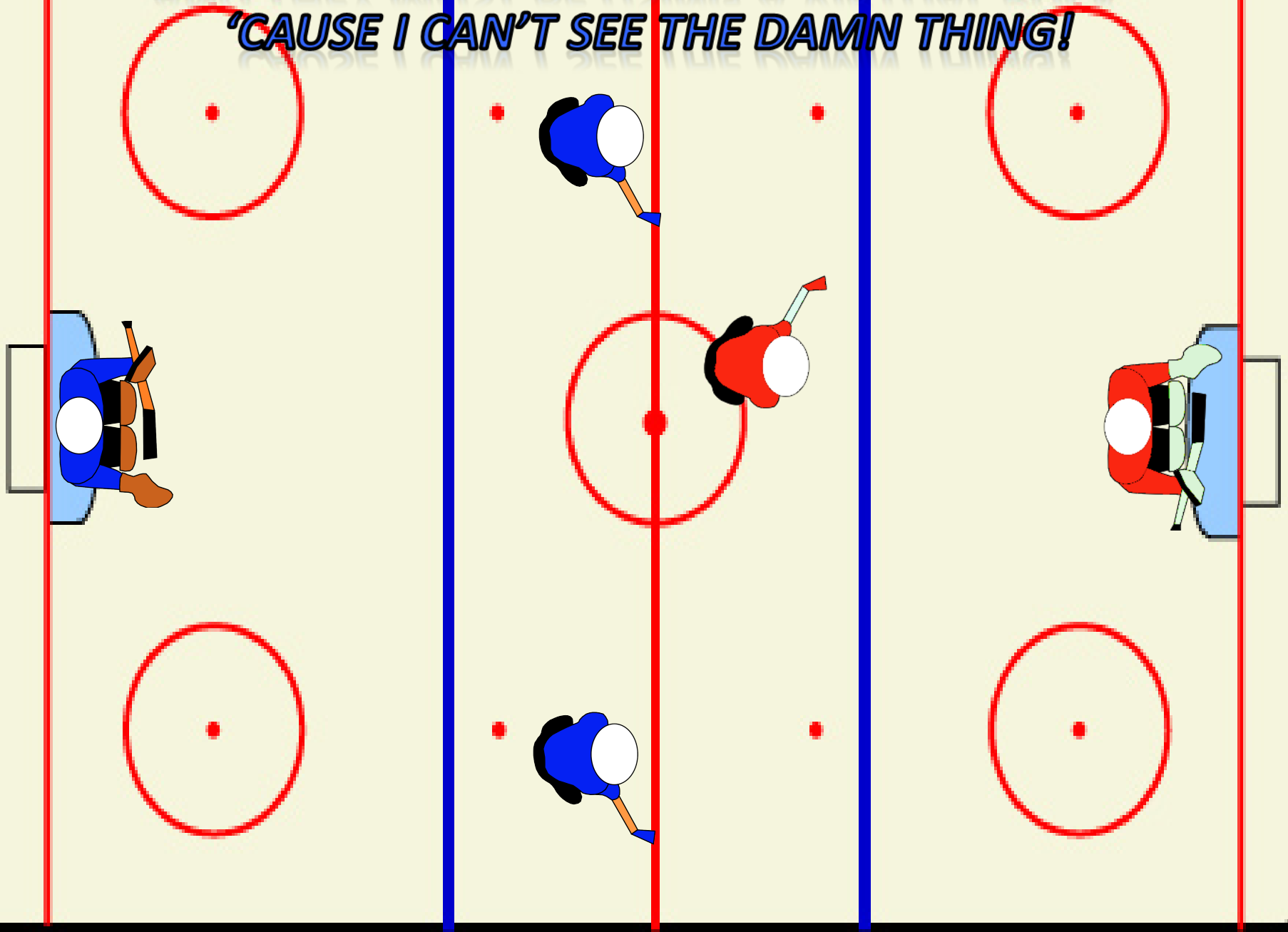
**AND THEY MUST BE USING A VIRTUAL PUCK,
'CAUSE I CAN'T SEE THE DAMN THING!**

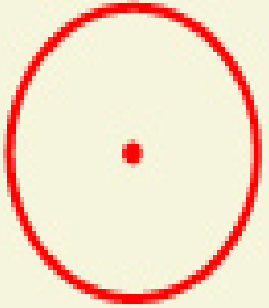
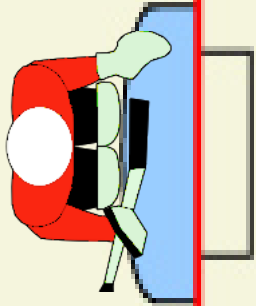
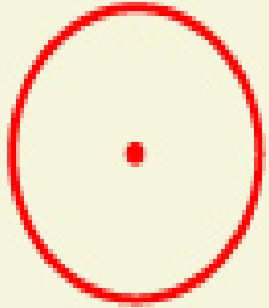
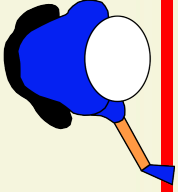
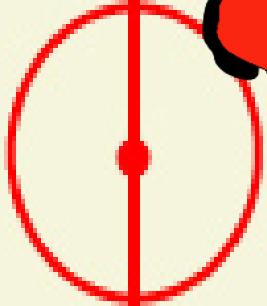
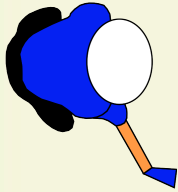
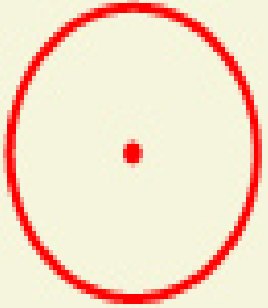
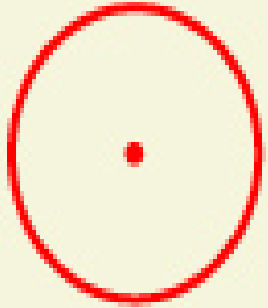
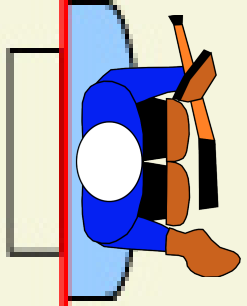


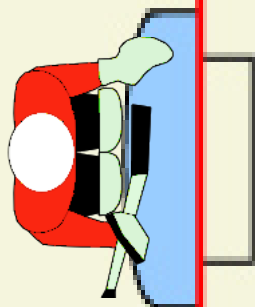
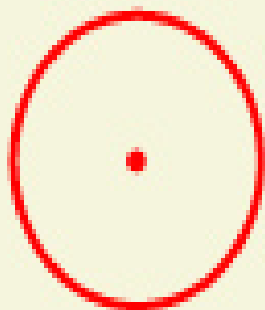
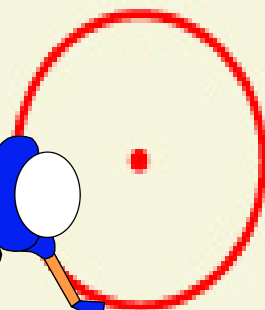
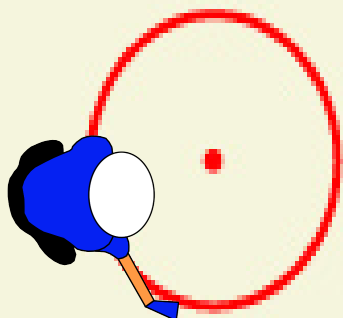
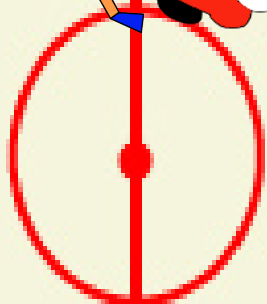
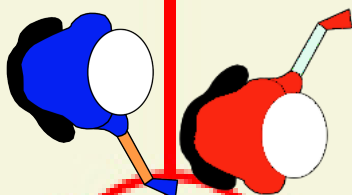
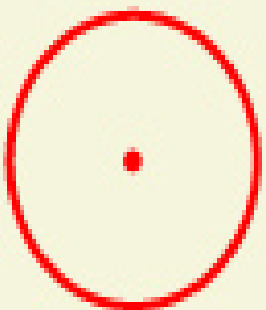
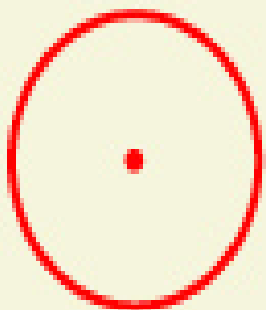
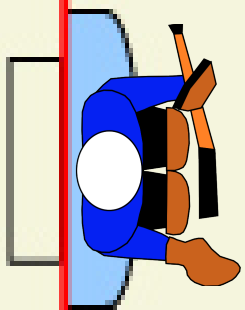
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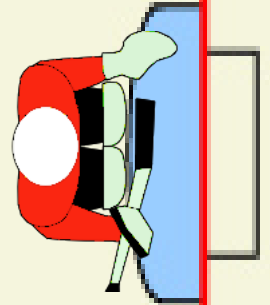
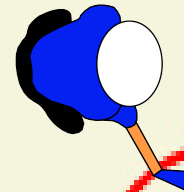
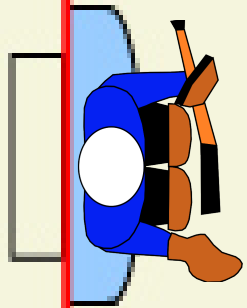
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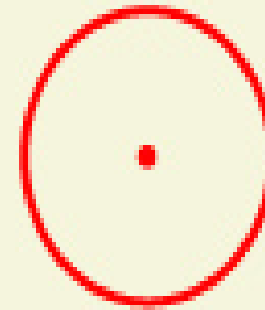
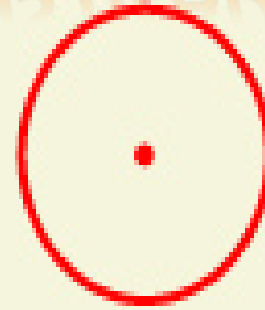
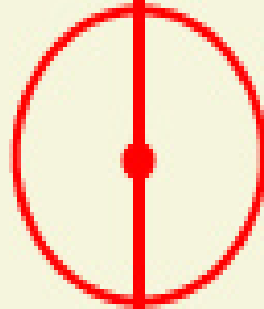
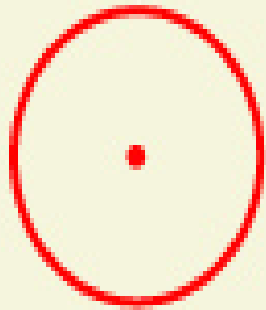
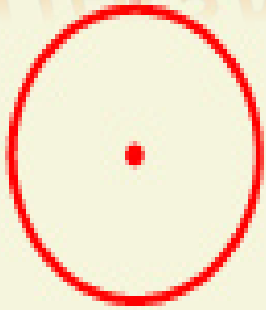
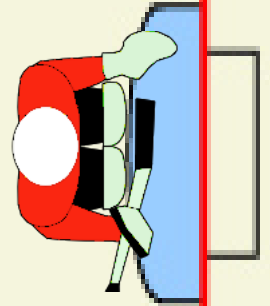
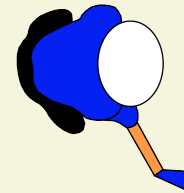
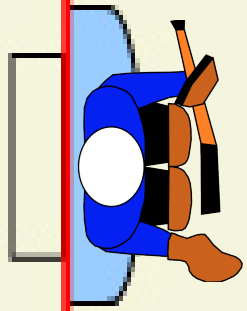




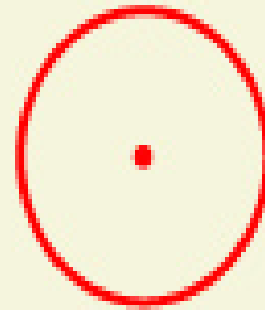
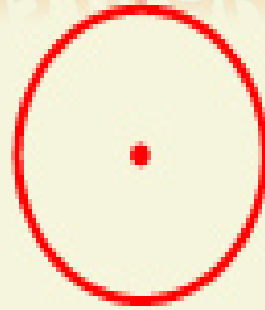
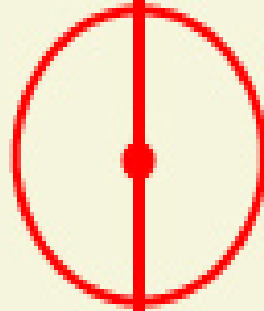
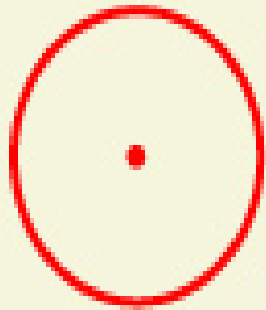
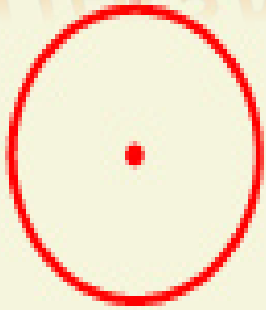
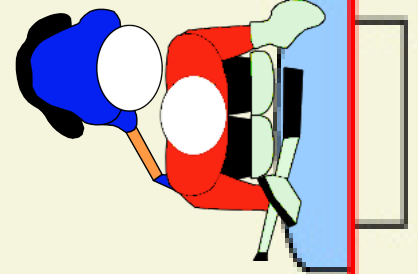
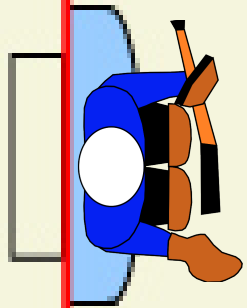
MATTER'S REMAINING DEFENSEMAN IS HEADING FOR THE GOAL!



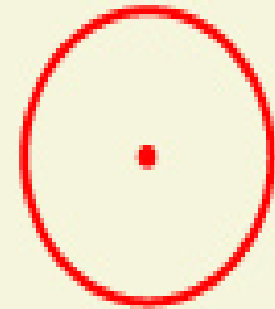
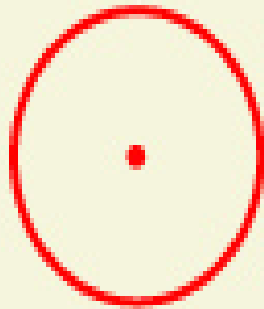
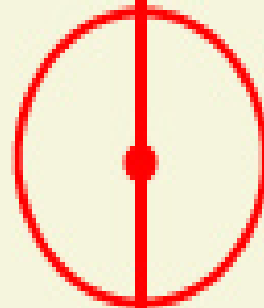
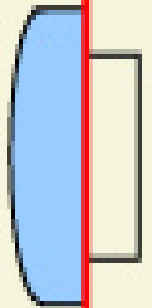
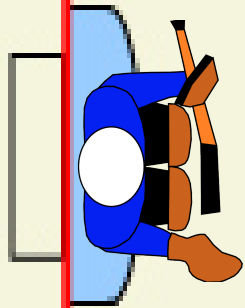
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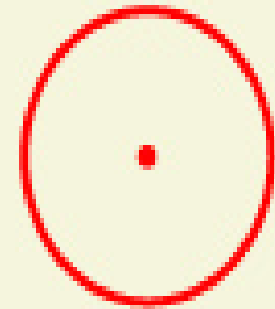
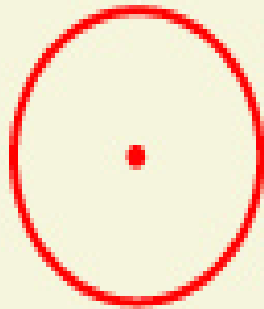
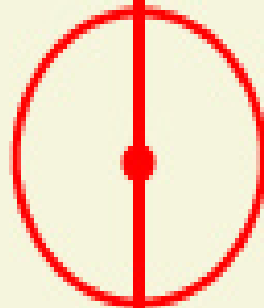
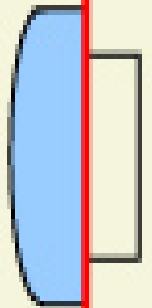
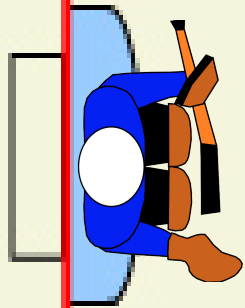
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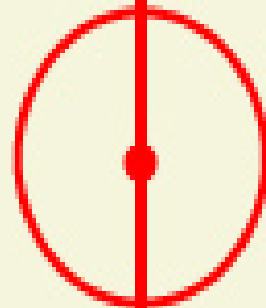
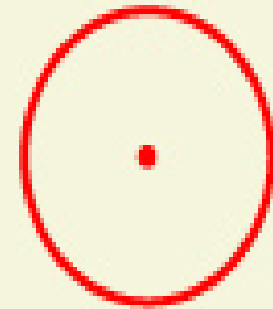
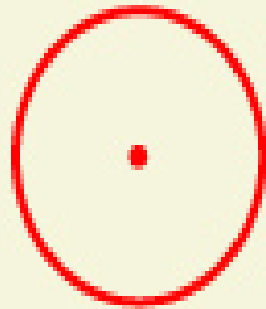
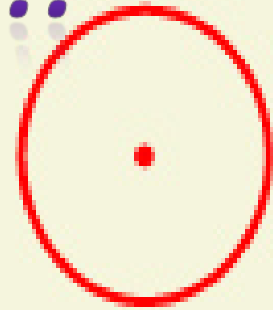
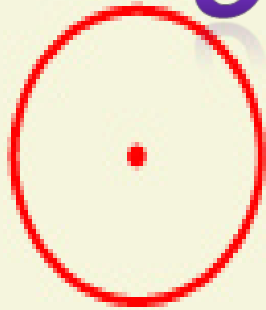
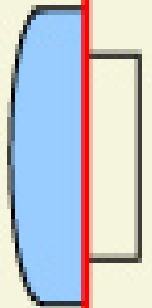
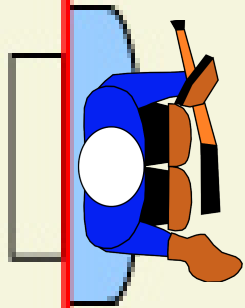
**HE'S ANNIHILATED HIMSELF AND TAKEN
ANTIMATTER'S GOALIE WITH HIM!!**

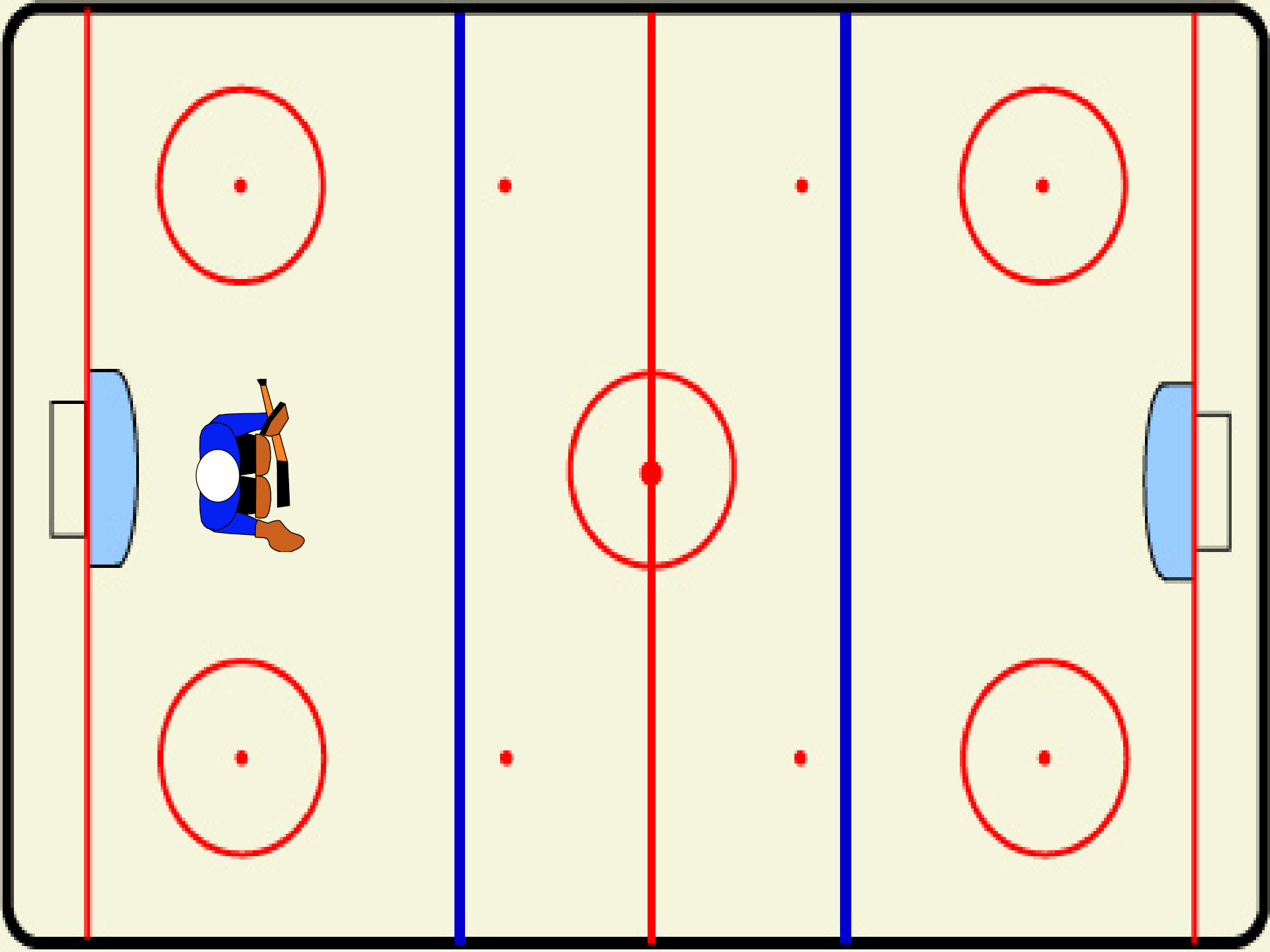


**HE'S ANNIHILATED HIMSELF AND TAKEN
ANTIMATTER'S GOALIE WITH HIM!!**

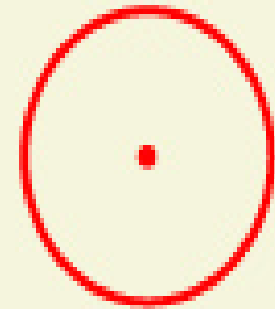
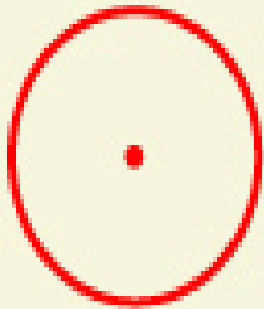
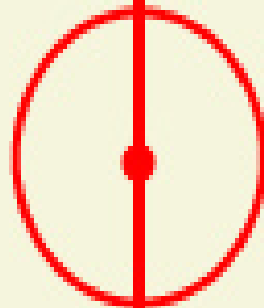
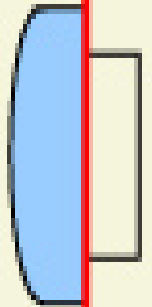
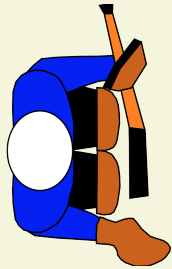
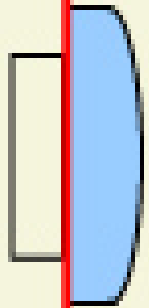


OH, THE HUMANITY!!!

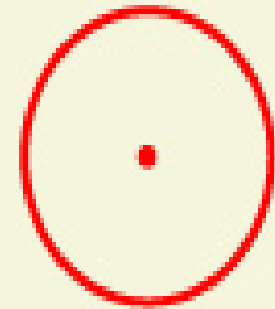
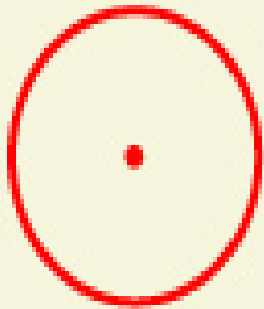
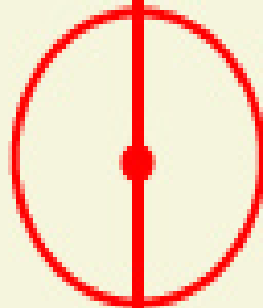
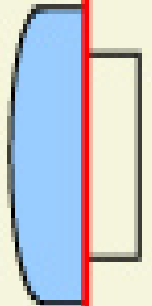
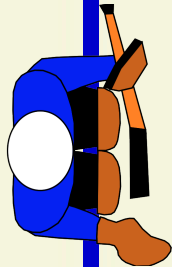
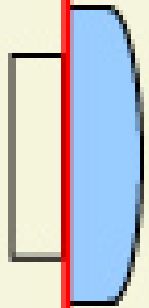




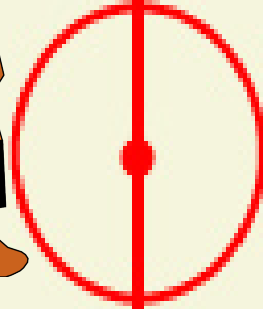
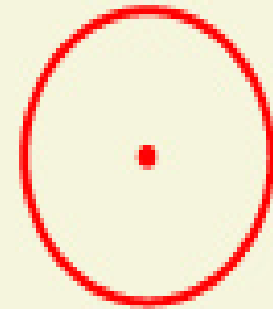
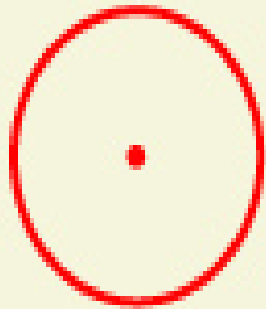
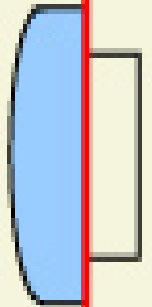
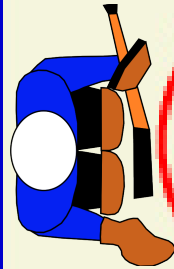
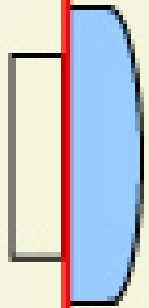
**MATTER WINS BY THE THE NEW
"LAST PARTICLE STANDING" RULE!**



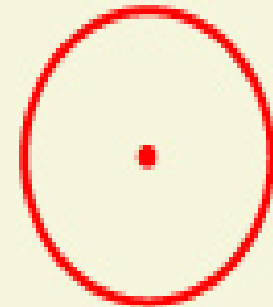
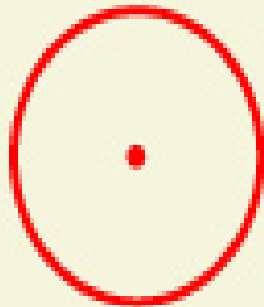
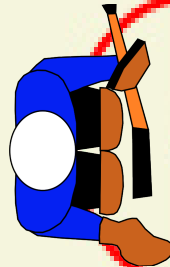
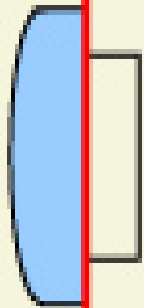
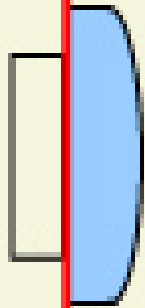
**MATTER WINS BY THE THE NEW
"LAST PARTICLE STANDING" RULE!**



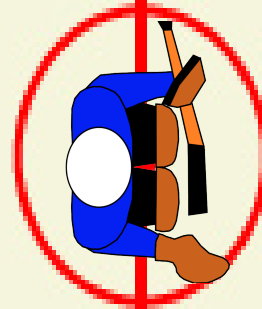
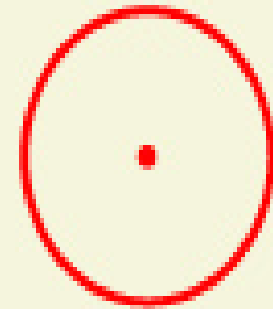
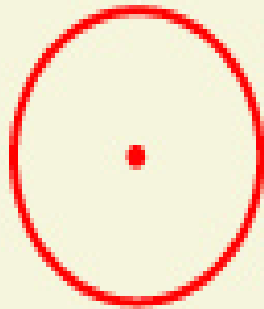
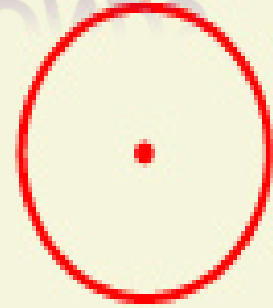
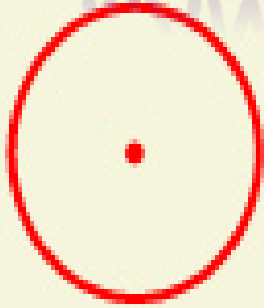
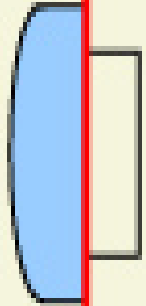
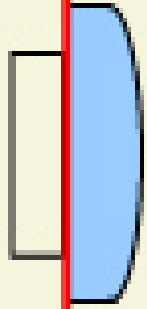
**MATTER WINS BY THE THE NEW
"LAST PARTICLE STANDING" RULE!**



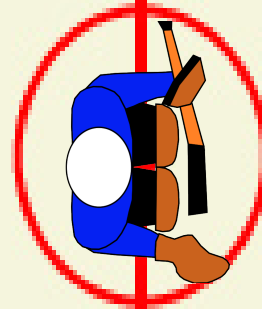
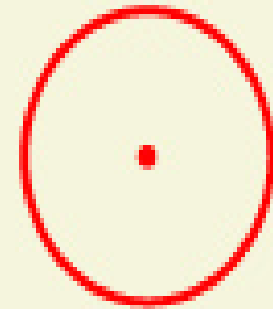
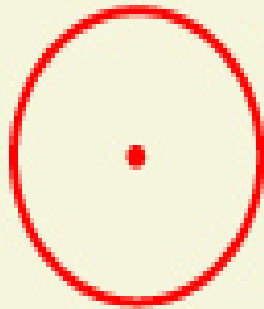
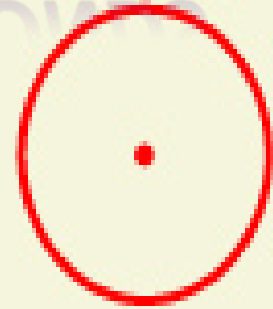
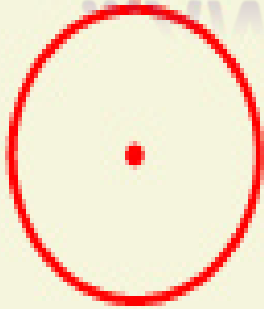
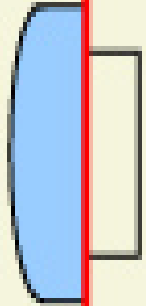
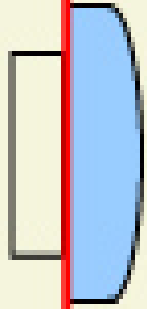
**MATTER WINS BY THE THE NEW
"LAST PARTICLE STANDING" RULE!**



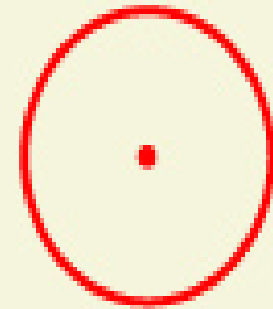
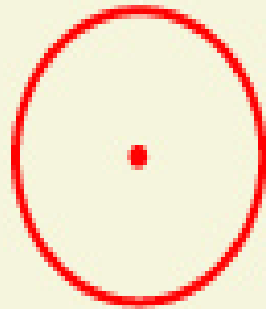
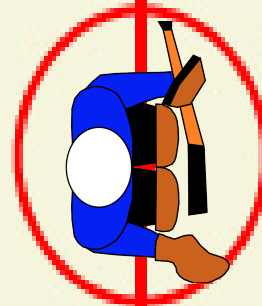
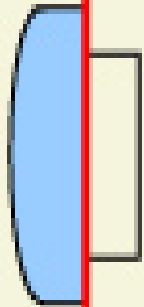
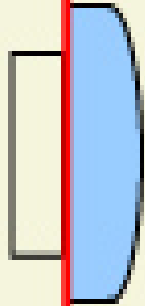
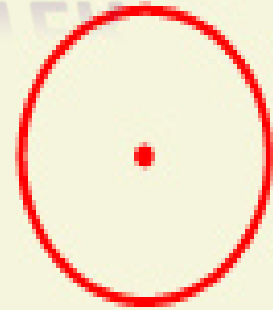
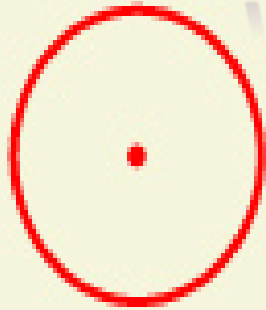
**...AND AFTER ONLY 10^{-5} SECONDS
OF THE FIRST PERIOD!!**



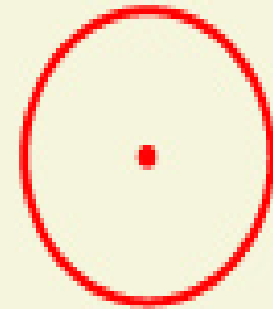
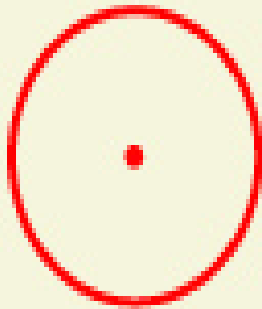
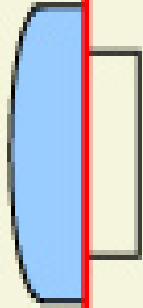
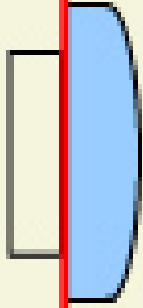
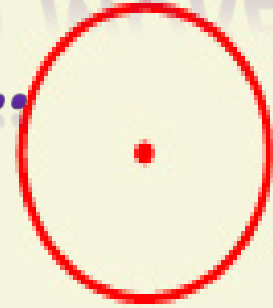
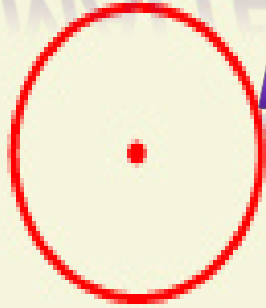
**...AND AFTER ONLY 10^{-5} SECONDS
OF THE FIRST PERIOD!!**

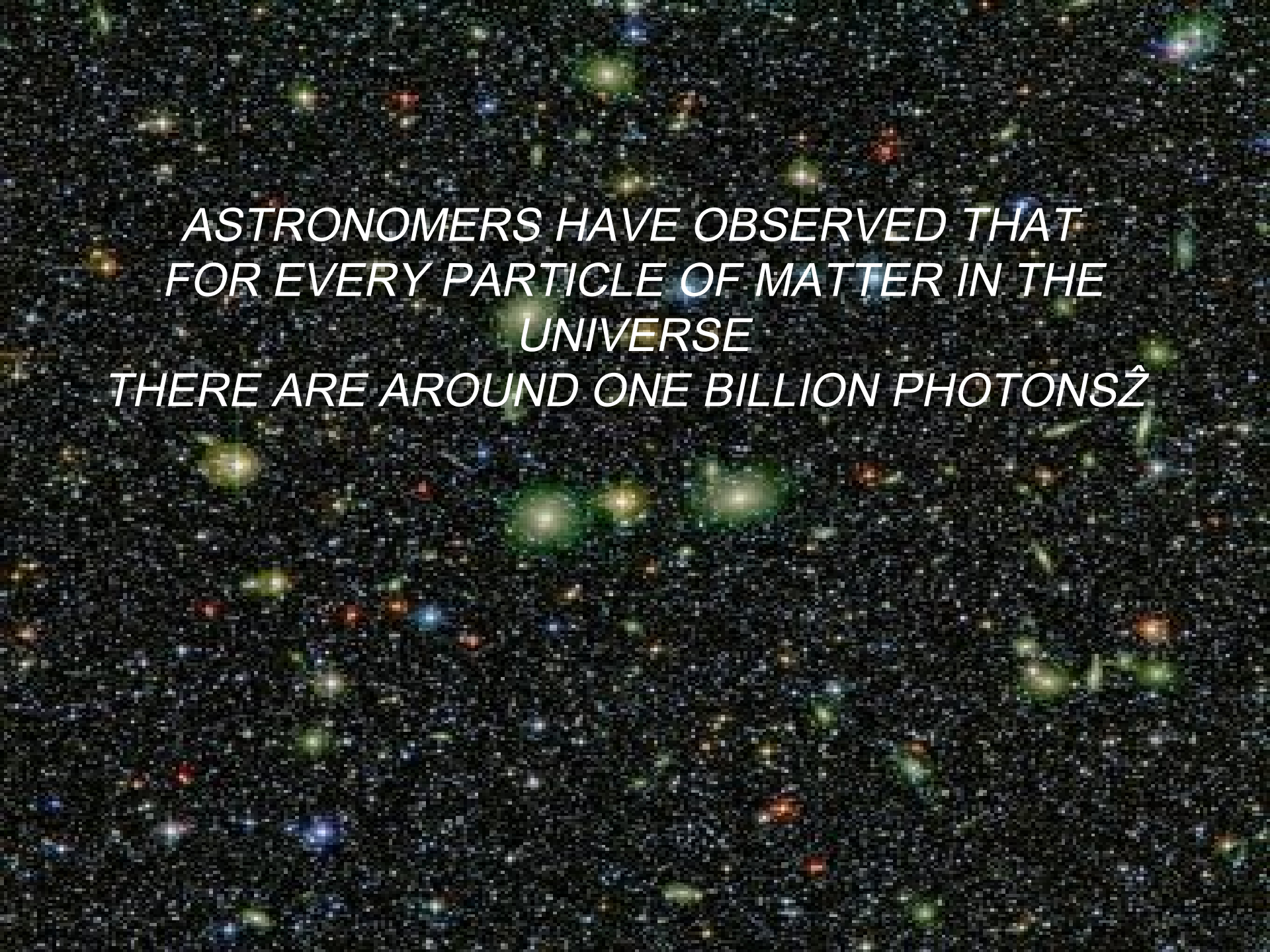


***THAT'S IT FOR ANTIMATTER
IN THIS UNIVERSE!***



***MATTER WILL GO ON TO MEET MORE
MATTER IN THE FINALS...***



The background of the image is a vast field of galaxies, each appearing as a distinct, multi-colored blob of light against the dark cosmic background. The colors range from bright yellow and orange to deep reds, blues, and greens, representing different stages of galaxy evolution or different types of galaxies. The galaxies are scattered across the entire frame, creating a sense of depth and scale.

*ASTRONOMERS HAVE OBSERVED THAT
FOR EVERY PARTICLE OF MATTER IN THE
UNIVERSE
THERE ARE AROUND ONE BILLION PHOTONS²*

*ASTRONOMERS HAVE OBSERVED THAT
FOR EVERY PARTICLE OF MATTER IN THE
UNIVERSE
THERE ARE AROUND ONE BILLION PHOTONS*

*THAT MEANS THAT
FOR EVERY ONE BILLION
MATTER AND ANTIMATTER PARTICLES
MADE JUST AFTER THE BIG BANG,
ONE MATTER PARTICLE SURVIVED*

***IN OUR UNIVERSE,
FOR EVERY ONE
OF THESE...***

***IN OUR UNIVERSE,
FOR EVERY ONE
OF THESE...***



***IN OUR UNIVERSE,
FOR EVERY ONE
OF THESE...***

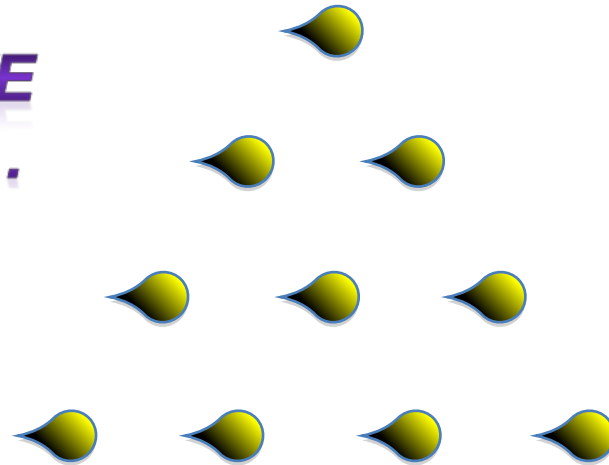


***WE
OBSERVE
ABOUT...***

**IN OUR UNIVERSE,
FOR EVERY ONE
OF THESE...**



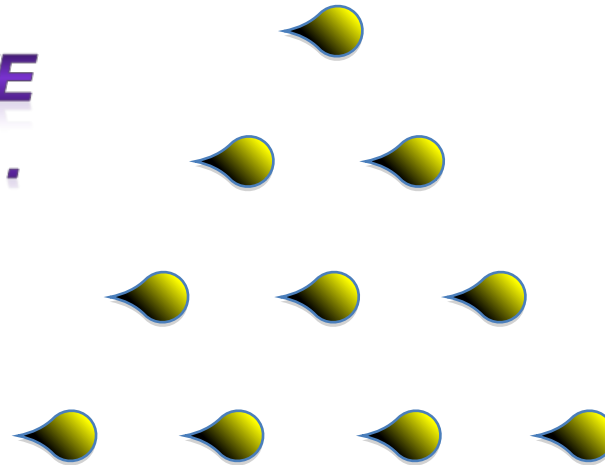
**WE
OBSERVE
ABOUT...**



**IN OUR UNIVERSE,
FOR EVERY ONE
OF THESE...**



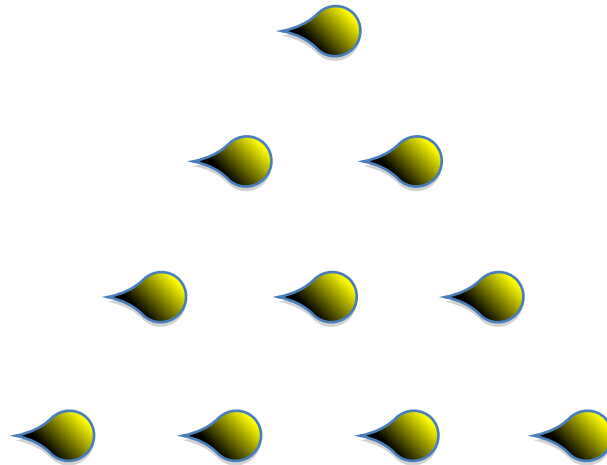
**WE
OBSERVE
ABOUT...**



**(PLUS
999,999,990
OTHERS)
OF THESE.**



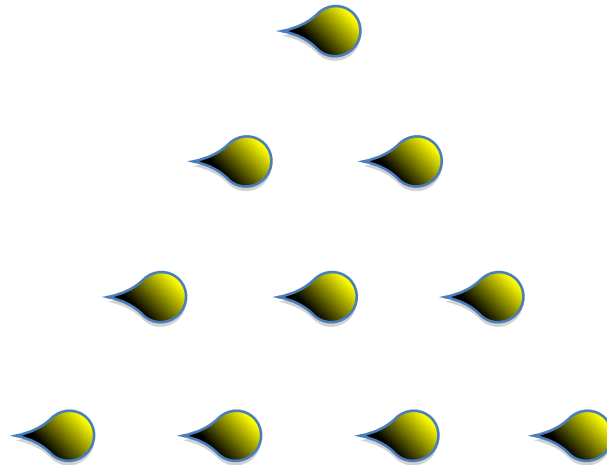
IF THIS IS WHAT WE OBSERVE NOW,



+ 999,999,990

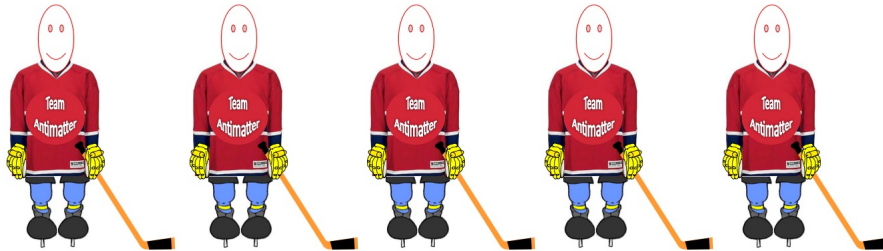


THEN \approx 14 BILLION YEARS AGO...



+ 999,999,990

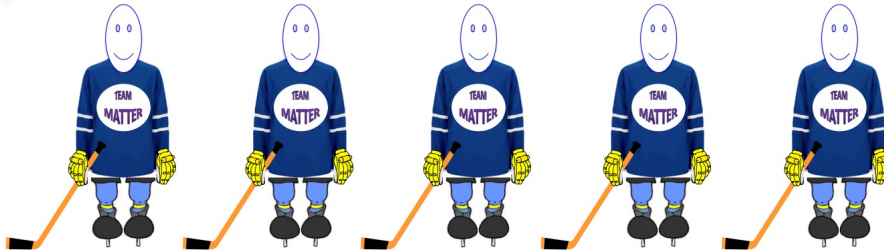
FOR EVERY...



+

**≈ 400,000,005
others**

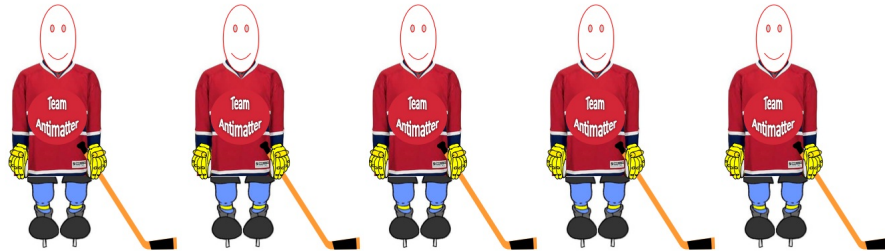
...AND...



+

**≈ 400,000,005
others**

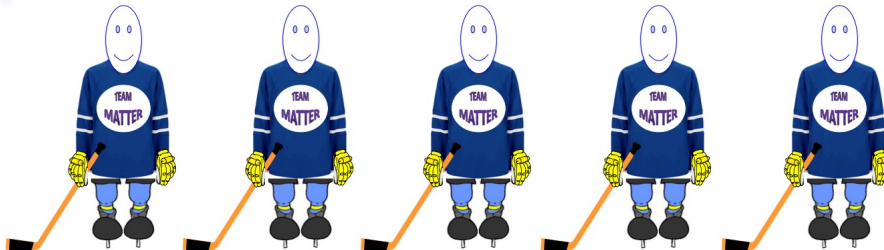
FOR EVERY...



+

**≈ 400,000,005
others**

...AND...



+

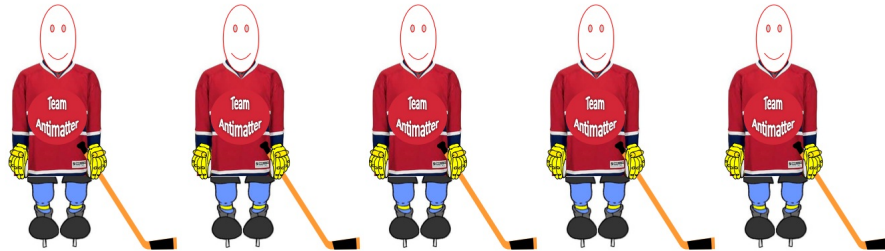
**≈ 400,000,005
others**



and this guy



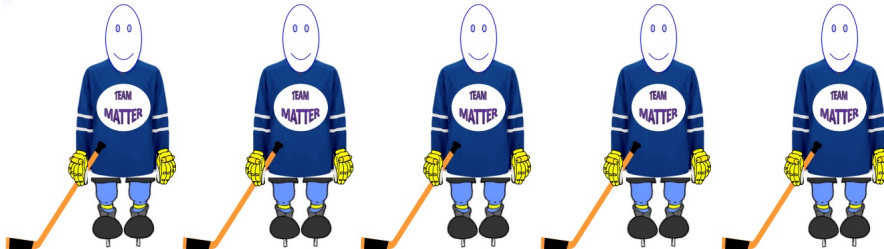
FOR EVERY...



+

≈ 499,999,995
others

...AND...



+

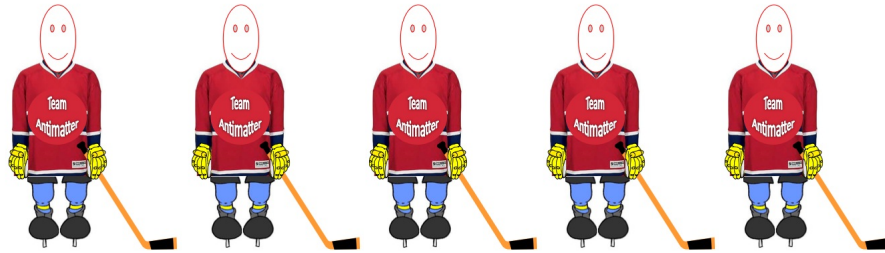
≈ 499,999,995
others

**THIS MUST HAVE
HAPPENED...**



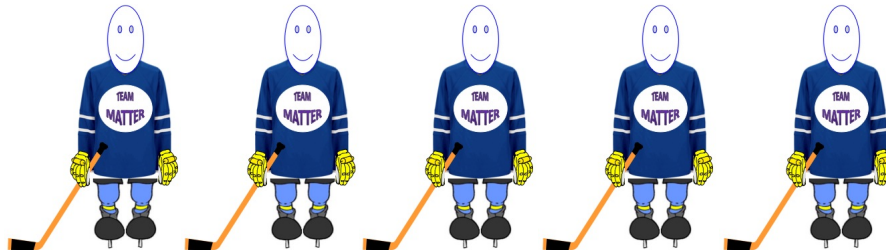
and this guy





+

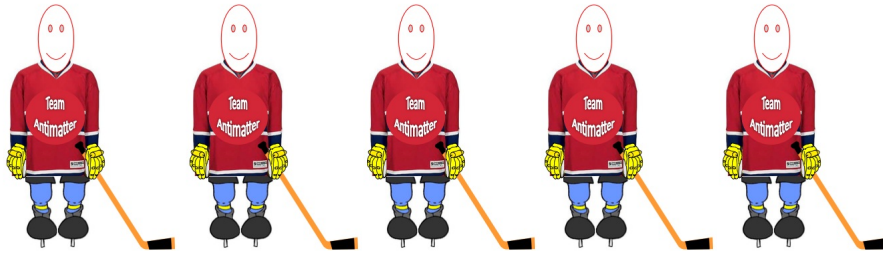
≈ 400,000,005
others



+

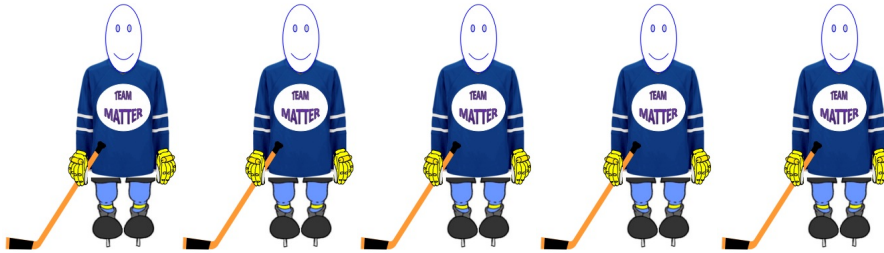
≈ 400,000,005
others





+

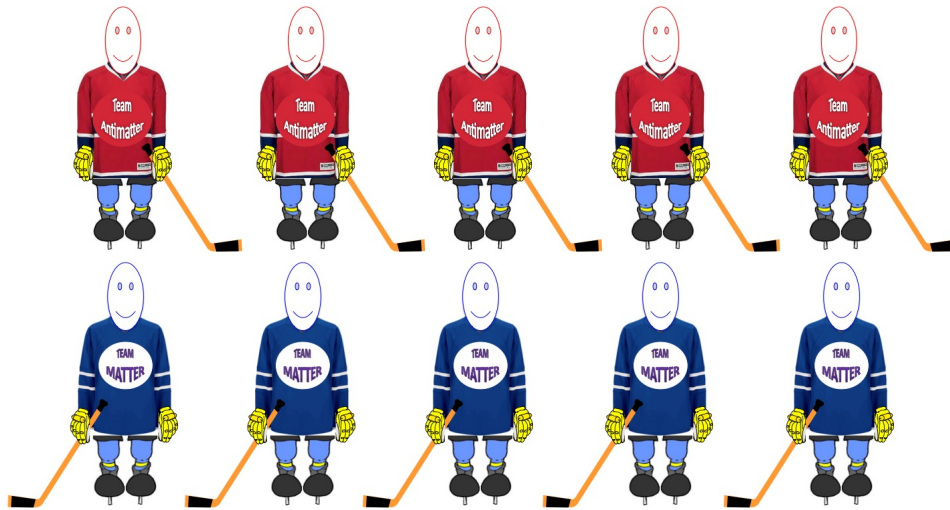
≈ 499,999,995
others



+

≈ 499,999,995
others





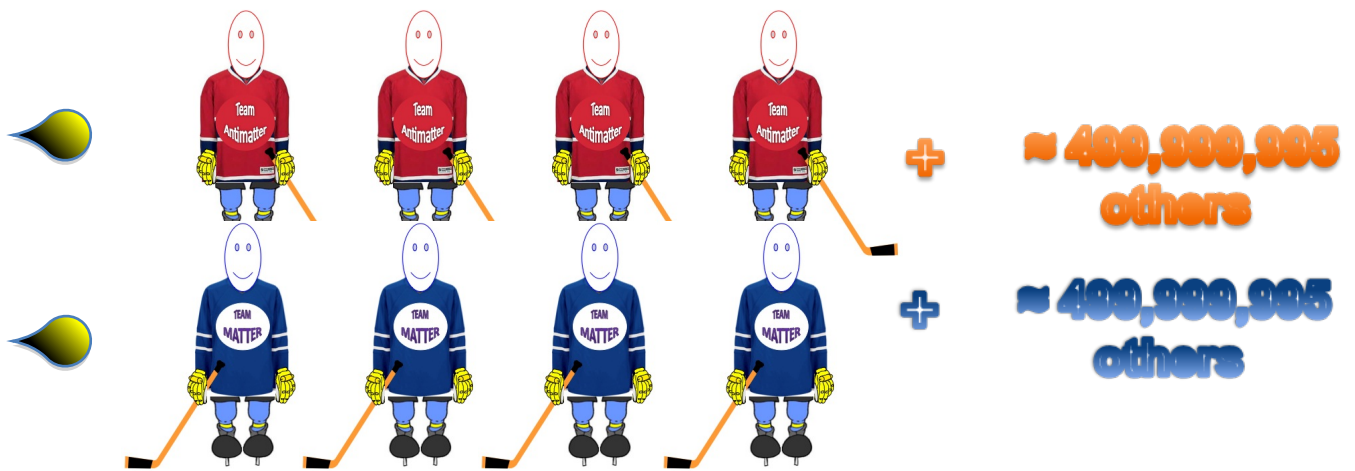
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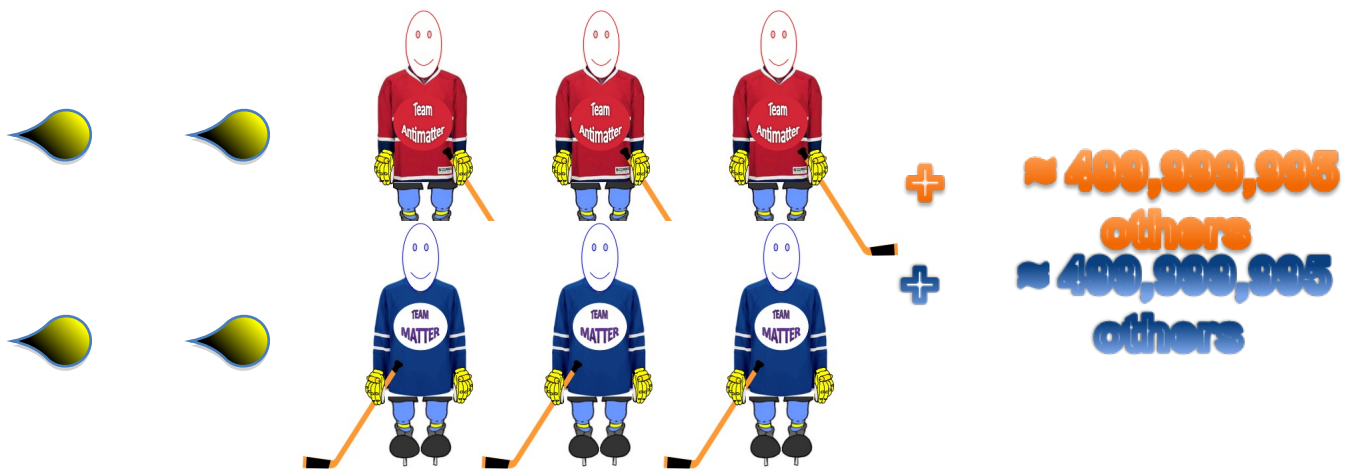
≈ 400,000,005
others

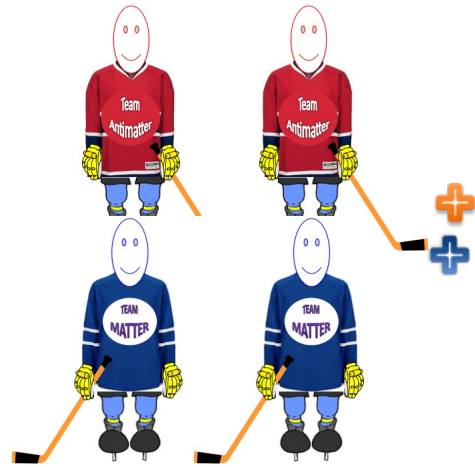
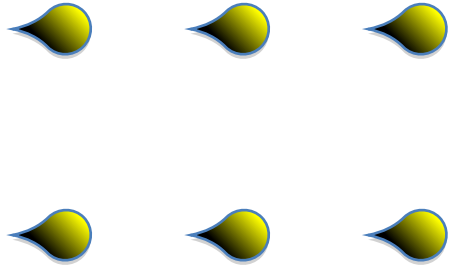
+

≈ 400,000,005
others



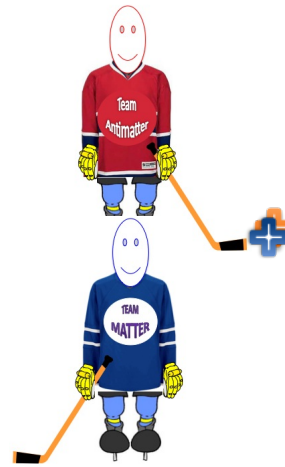
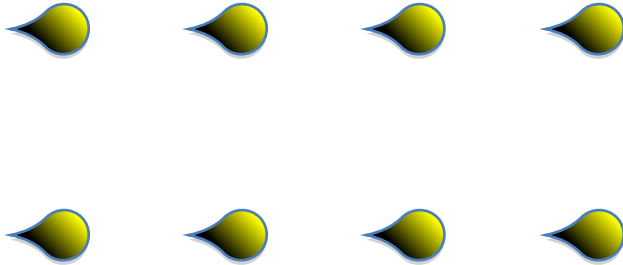






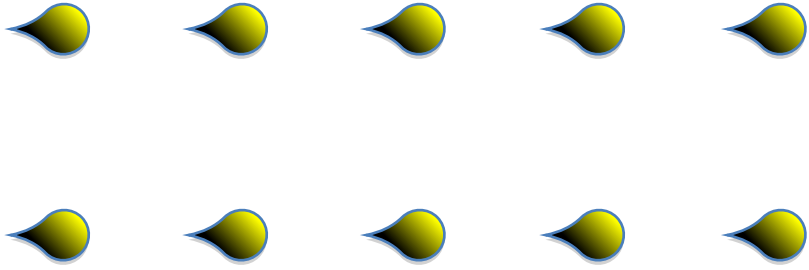
≈ 400,000,005
≈ 400,000,005
others





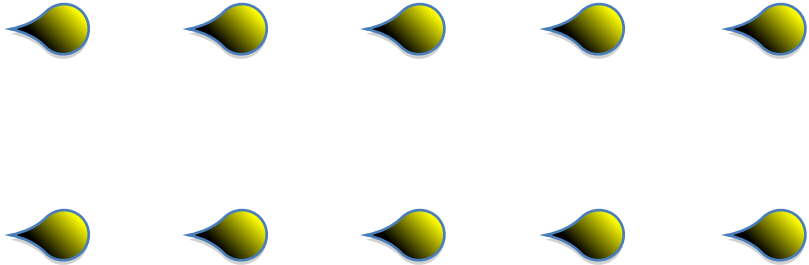
~ 400,000,000
others





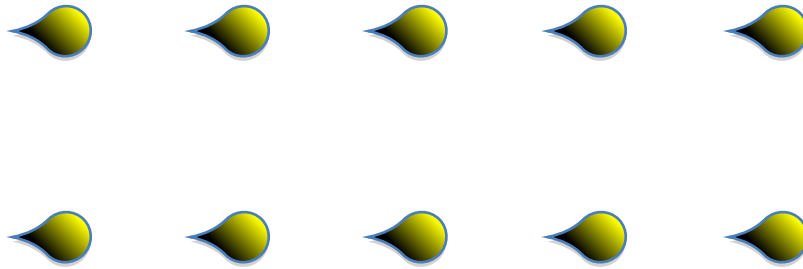
+ **~ 400,000,005**
others





+  **999,999,990**
others





+ 999,999,990
others

and the survivor



WHAT WE DO NOT YET UNDERSTAND IS
WHY?

WHY WAS THERE SLIGHTLY MORE MATTER
THAN ANTIMATTER SO EARLY ON?

If we really could look at a replay to see how antimatter became shorthanded, what would we

find?
Why was antimatter the weaker team after only
 10^{-10} seconds of our Universe's existence?

If we really could look at a replay to see how antimatter became shorthanded, what would we

Why was antimatter the weaker team after only 10^{-10} seconds of our Universe's existence? ^{find?}

Think about the differences between matter and antimatter that you have already learned.

Could these account for antimatter losing the 'Universal Grudge Match'?

If we really could look at a replay to see how antimatter became shorthanded, what would we

Why was antimatter the weaker team after only 10^{-10} seconds of our Universe's existence? ^{find?}

Think about the differences between matter and antimatter that you have already learned.

Could these account for antimatter losing the 'Universal Grudge Match'?

Although it goes a little beyond the scope of this module, if you are interested in learning about what physicists believe MAY be the answer to this riddle (and how they intend to test their theories), see the following link:

<http://public.web.cern.ch/public/en/Research/CPViolation-en.html>

Finally, here's one more question to ponder!

*What would have happened if
ANTIMATTER had won over MATTER?*

Finally, here's one more question to ponder!

*What would have happened if
ANTIMATTER had won over MATTER?*

*WOULD WE HAVE NOTICED ANY
DIFFERENCE?*