Doing a full one-tailed hypothesis test

We've done various bits of a hypothesis test, and haven't actually properly conducted one yet. Let's do an example!

John tosses a coin 8 times and it comes up heads 6 times. He claims the coin is **biased towards heads**. With a significance level of 5%, test his claim.

STEP 1: Define test statistic X (stating its distribution), and the parameter p.

STEP 2: Write null and alternative hypotheses.

STEP 3: Determine probability of observed test statistic (or 'more extreme'), assuming null hypothesis.
i.e. Determine probability we'd see this outcome just by chance.

STEP 4: Two-part conclusion:
1. Do we reject H_0 or not?
2. Put <u>in context of original problem</u>.

C.D.F. Binomial table: $p = 0.5, n = 8$

x	$P(X \leq x)$
0	0.0039
1	0.0352
2	0.1445
3	0.3633
4	0.6367
5	0.8555
6	0.9648
7	0.9961

NEW TO A LEVEL 2017: The probability of 'the observed value or more extreme' is known as the p-value.